The Effects of the Attachment and Biobehavioural Catchup Intervention on Parenting- and Child-related Outcomes: A Systematic Review

Tyler Ashlee Reynolds

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Supervised by:

Mr Ahmed Riaz Mohamed

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To my wonderful fiancé, Sasha, without you I would have given up on my journey to pursue my dream of being a psychologist a long time ago. You kept me grounded and motivated, despite my severe difficulty with procrastination and shutting down when feeling stressed and overwhelmed. You kept reminding me that soon I would be able to live that dream and that this was one of the final hurdles of many that I had already encountered. Thank you for always staying by my side, and for staying strong for both of us when I was unable to pull my weight.

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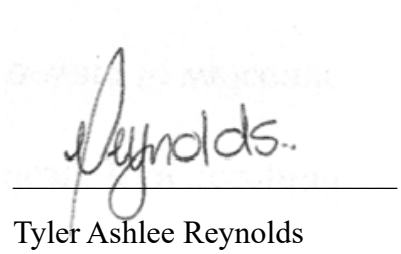
Declaration

I, Tyler Ashlee Reynolds (u17084505), hereby declare that this mini-dissertation (*The Effects of the Attachment and Biobehavioural Catchup Intervention on Parenting- and Child-related Outcomes: A Systematic Review*) is my own work except where I used or quoted another source, which has been acknowledged and referenced. I further declare that the work that I am submitting has not previously been submitted before another degree or to any other university or tertiary institution for examination.



Tyler Ashlee Reynolds

On the 14th day of October 2024.

Ethics Statement

I, Tyler Ashlee Reynolds (u17084505), have obtained the applicable research ethics approval for the research titled 'The Effects of the Attachment and Biobehavioural Catchup Intervention on Parenting- and Child-related Outcomes: A Systematic Review' on the 27th of October 2022 (reference number: HUM024/0922) from the Faculty of Humanities Research Ethics Committee at the University of Pretoria (see Appendix A).

Abstract

Children who are exposed to early childhood adversity, such as abuse, neglect or violence to name a few, are at the greatest risk for the development of a disorganised attachment and, subsequently, are prone to experiencing increased internalising and externalising behaviours. This is commonly the case when children are exposed to foster care systems. In an attempt to mitigate this risk, the Attachment and Biobehavioural Catch-Up (ABC) intervention was developed as a parenting intervention with the intention of enhancing the degree of parental sensitivity and nurturance employed by foster caregivers towards their children in order to promote attachment security. This is done by parent coaches who guide caregivers on how to be more responsive and attuned to their child's needs when their child is feeling distressed. To date, only one other systematic review exists that has summarised and synthesised the effects of the ABC intervention on child-related outcomes. The current systematic review sought to provide an update to this already existing knowledge while also expanding thereon by including a summary and synthesis of the effects of the ABC intervention on parent-/parenting-related outcomes. In order to do this, seven scholarly databases were searched for published and grey literature assessing the effectiveness of the ABC intervention. Following screening by title, abstract and full-text, the application of inclusion criteria resulted in a final sample of nine records which were included in the review and subject to narrative synthesis. The findings related to the child-related outcomes suggested that the ABC intervention resulted in improved self-regulatory capacities, decreased anger dysregulation, increased social-emotional competence, and the development of more organised attachments. Additionally, findings suggested that the developmental trajectories of participating children reflected more normative pathways. The findings related to the parent-/parenting-related outcomes suggested that the ABC intervention resulted in increased parental sensitivity and positive regard, decreased intrusive parenting behaviours and decreased atypical or anomalous parenting. Overall, therefore, the evidence suggests that the ABC is an intervention effective at improving the developmental outcomes of at-risk children as well as the parenting capacities of their parents/caregivers.

Keywords: Attachment and Biobehavioural Catch-Up; ABC; attachment; parenting; parental sensitivity; nurturance; early childhood adversity; regulation; childhood development; systematic review

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List of Abbreviations

AAI – Adult Attachment Interview

ABC - Attachment and Biobehavioural Catch-up

ABC-I – Attachment and Biobehavioural Catch-up for Infants

ABC-T – Attachment and Biobehavioural Catch-up for Toddlers

mABC – modified Attachment and Biobehavioural Catch-up

AMBIANCE – Atypical Maternal Behaviour Instrument for Assessment and Classification

ANOVA – Analysis of Variance

ANCOVA – Analysis of Covariance

BITSEA - Brief Infant-Toddler Social and Emotional Assessment

CAPI – Child Abuse Potential Inventory

CBCL - Child Behaviour Checklist

CES-D – Centre for Epidemiologic Studies Depression Scale

CPS – Child Protective Services

CTQ – Childhood Trauma Questionnaire

DB-DOS - Disruptive Behaviour Diagnostic Observation Schedule

DEF – Developmental Education for Families

ECA - early childhood adversity

GAD-7 – Generalised Anxiety Disorder 7-Item Scale

HPA - hypothalamic-pituitary-adrenal axis

MBT-P – Mentalisation-Based Treatment for Parents

MBQS - Maternal Behaviour Q-sort

ORCE – Observational Record of the Caregiver Environment

PCIT – Parent-Child Interaction Therapy

PPVT (III) – Peabody Picture Vocabulary Test – 3rd edition

PRF – parental reflective functioning

PRISMA – Preferred Reporting Items for Systematic Reviews and Meta-Analyses

PSI – Parent Stress Index Short Form

RCT - randomised controlled trial

SR – systematic review

SSP - Strange Situation Procedure

USA – United States of America

VIPP-SD – Video-Feedback Intervention to Promote Positive Parenting and Sensitive Discipline

WWW – Watch, Wait, and Wonder intervention

Chapter 1: Introduction

1.1. Introduction

This chapter outlines the research problem pertaining to the effects of early childhood adversity (ECA) on the attachment that a child has to their caregivers. Additionally, this chapter aims to orient the reader to the use of attachment-based interventions such as the Attachment and Biobehavioural Catch-Up (ABC) intervention in mitigating these effects. Thereafter, a description of the rationale for the current systematic review (SR) will be provided along with the aim and objectives of the study, the research question, and a breakdown of the chapters to follow.

1.2. Research Problem

The development of a child is often viewed through an evolutionary lens as a process of adaptation that functions as a sensitive and crucial determinant of their ability to thrive within the external environments that they find themselves in throughout their later life (Kail & Cavanaugh, 2017). This process of development starts prior to birth, and many believe that it persists throughout life. One of the most crucial stages of the developmental process, however, occurs during infancy and early childhood, from birth to the age of eight years old, as this period of life represents the most formative period for physical, emotional, cognitive, and social development (Bick et al., 2019; Kail & Cavanaugh, 2017; Mountain et al., 2017). This development is further believed to be predicated on the quality of the child's earliest relationships during this time. Through developing a secure relationship with a primary caregiver during infancy, who is experienced as warm, nurturing, and caring, a child is more likely to survive and adapt to the hardships they may experience within their external environment (Gregory et al., 2020; Kail & Cavanaugh, 2017).

This can be further understood from the perspective of John Bowlby's (1969, 1991) Attachment Theory which postulates that the quality of a child's attachment toward their primary caregiver and, consequently, their developmental trajectory can be influenced by their caregiver's degree of sensitive responsiveness to their needs. This implies that a primary caregiver's ability to accurately interpret and respond to their child's signals functions as a predictor of their future development (Kail & Cavanaugh, 2017; Mountain et al., 2017). The theory further highlights that should a primary caregiver employ adequate responsiveness, this will serve to elicit a higher degree of social competence in a child, positively influencing

emotion regulation, and reducing the occurrence of behavioural problems (Mountain et al., 2017; Thorpe et al., 2022). Should a primary caregiver, however, engage in parenting that is characteristically disturbed or anomalous and atypical in nature, the child may develop an insecure or disorganised attachment which influences their ability to be soothed in the face of distress (Gregory et al., 2020; Kail & Cavanaugh, 2017). They are more likely to view their external environment as too demanding and unsafe and may be more prone to psychopathology as they grow older.

Attachment theory postulates that by developing an insecure or disorganised attachment, the emotional, cognitive, and physical development of a child may be significantly hindered (Bick et al., 2019; Schroeder et al., 2020). Particularly, when ECA is experienced by a child—through maladaptive styles of parenting that are viewed as characteristically abusive, neglectful, or disrupted—the child is more prone to developing maladaptive patterns of relating to others and experience difficulties with self-regulation (Fearon & Belsky, 2018). Consequently, they are believed to be at greater risk for developing behavioural problems and other psychopathological outcomes as they grow older (Bick et al., 2019; Schroeder et al., 2020).

Commonly, it is cited that disrupted parenting forms one of the primary features of experiences of ECA for many children and can explain, at least in part, why ECA is so damaging for children (Bernard et al., 2015a; Yarger et al., 2020). Subsequently, several attachment-based interventions have been designed with the intention of targeting the ways in which high risk primary caregivers parent their children, in order to facilitate improved child outcomes (Bernard et al., 2015a; Yarger et al., 2020). Indeed, it has been found that such attachment-based interventions aid in shifting the child from engaging in maladaptive attachments to more adaptive attachments, resulting in improved self-regulation and capacity to cope with distress (Bernard et al., 2015a; Yarger et al., 2020). For those children who are exposed to ECA and are more likely to develop disorganised attachments, one way that the negative outcomes of ECA can be mitigated is through the use of particular attachment-based parenting interventions such as the ABC intervention (Dozier & Bernard, 2019), which serves as the focus of the current study.

1.3. Rationale

Currently, one SR of 10 published articles exists, wherein randomised controlled trials (RCT) testing the effectiveness of the ABC intervention on child-related outcomes has been evaluated (Grube & Liming, 2018). In their systematic review, Grube and Liming (2018) found

that, due to participating in the ABC intervention, more positive mental health and developmental outcomes were achieved as a result of children becoming better equipped to manage and regulate their own emotions. The implication thereof is that this increases the likelihood of children developing along a healthier developmental trajectory (Grube & Liming, 2018). The evidence, as summarised and synthesised by Grube and Liming (2018) suggests, therefore, that the ABC is a promising approach in facilitating developmental outcomes in children who have experienced ECA.

Inasmuch as the ABC intervention elicits the development of more secure attachments and healthier socioemotional development in children exposed to ECA, the establishment of an attachment between a primary caregiver and their child is an important developmental task for both members of the dyad (Crugnola et al., 2016). Furthermore, the ABC intervention, inasmuch as it is an attachment-based intervention, elicits changes in the child indirectly, through targeting parenting. Consequently, the ABC intervention influences the way in which the primary caregiver perceives, approaches, and parents their child (Bernard et al., 2015a; Grube & Liming 2018; Thorpe et al., 2021; Yarger et al., 2020). Hence, given the parent, and parenting, focus of the ABC, it is important to include parent-related outcomes in the summary and synthesis of the outcomes of the ABC intervention. Moreover, the previous SR was conducted in 2018, and, for this reason, it would be beneficial to provide an updated summation of child outcomes reported on in the literature published since then.

1.4. Aims and Objectives of the Study

The aim of this study, therefore, was to qualitatively aggregate the literature supporting the ABC intervention to make this easily accessible to researchers, practitioners, and policymakers. As a result, the objectives of the study were to summarise and synthesise, qualitatively, evidence on the existence and nature of the effect of the ABC intervention on 1) child-related outcomes; and 2) parent/parenting-related outcomes.

1.5. Research Question

What is the state of the existing evidence on the effectiveness of the ABC intervention in relation to child- and parent/parenting-related outcomes?

1.6. Chapter Outline

Chapter 1 has introduced the literature, research problem, rationale, and aims of the current study, and has delineated the research question posed that the current SR sought to

investigate. Chapter 2 presents a review of pertinent literature on attachment, attachment-based interventions, broadly, as well as the ABC intervention, specifically. In so doing, the literature review highlights the main gaps that the current SR will address. Chapter 3 describes the methodology utilised to gather and aggregate information from a number of studies assessing the effectiveness of the ABC intervention. This includes the steps taken to collect, synthesise, and summarise the findings of the studies consulted. Chapter 4 describes the findings of the review, organised according to key a-priori themes. Chapter 5 provides a discussion of the summarised and synthesised research findings in relation to the SR's aims and objectives, and in the context of the existing literature. Finally, Chapter 6 provides a final summary of the findings of the SR as well as its strengths and limitations. Additionally, recommendations are made with regards to future research.

Chapter 2: Literature Review

2.1. Introduction

This chapter will provide a review of the relevant literature on the ABC intervention and the origins and theoretical underpinnings that led to its development. This will be done through first reviewing the literature pertaining to attachment theory. Additionally, this chapter will include a review of crucial concepts pertaining to attachment theory and the ABC intervention such as attachment, secure base and safe haven, parental sensitivity, parental nurturance, and lastly, patterns of attachment. Furthermore, this review will also include relevant information pertaining to additional factors that influence attachment relationships, as well as the overall importance of attachment in childhood development. Following this, the focus of the literature review will shift to that of attachment-based interventions and thereafter a specific focus on the ABC intervention.

2.2. Attachment Theory

2.2.1 Origins and Theoretical Frameworks

Attachment theory was first developed in 1958 by British psychoanalyst, John Bowlby, who expressed an interest in the reactions displayed by children following separation from their caregivers, or disruptions to the family structure, resulting from evacuations during the wartime circumstances of World War II (Bowlby, 1982; Bowlby, 1988; Cassidy, 2018). He observed that the distress experienced by these children consequently resulted in an expected pattern of behaviour and informed the way these children related to caregivers that had assumed their care thereafter (Bowlby, 1982; Bowlby, 1988; Cassidy, 2018). Additionally, in 1969, an American-Canadian psychologist, Mary Ainsworth, contributed significantly to the understanding of the parent-child attachment relationship through observing child behaviour (Ainsworth, 1979; Cassidy, 2018; Swartz et al., 2017). Ainsworth identified patterns that existed within this behaviour that resulted from distinctions made regarding the quality of care that a child received from their caregivers (Ainsworth, 1979; Cassidy, 2018; Swartz et al., 2017). She established a method of observing and assessing this behaviour as well as the reactions a child displayed in relation to their caregiver under conditions of mild stress such as separations from the caregiver and exposure to a stranger. This is what she termed the Strange Situation Procedure (SSP; Ainsworth, 1979; Cassidy, 2018; Swartz et al., 2017). The primary aim of the procedure was to classify the individual differences that were observed within the

attachment behaviour of infants thus allowing for a categorisation of childhood attachment as being either secure, insecure-avoidant, or insecure-ambivalent (Ainsworth, 1979; Cassidy, 2018; Swartz et al., 2017). Together, the works of John Bowlby and Mary Ainsworth paved the development and establishment of attachment theory which is regarded as a crucial and highly influential theory in the field of developmental psychology (Cassidy, 2018; Kail & Cavanaugh, 2017). It should be noted, however, that as time progressed, the scope of attachment theory has broadened through the contributions of Mary Main and Judith Solomon who, through application of the SSP, identified a fourth attachment classification—disorganised attachment—to account for those children showing anomalous behaviours that could not primarily be classified according to Ainsworth's original three-way system (Cassidy, 2018; Main & Solomon, 1986).

Attachment theory has several theoretical underpinnings that inform its framework such as psychoanalytic theory, systems theory, social learning theory, and the theory of cognitive development (Bowlby, 1982; Cassidy, 2018). Much of Bowlby's initial research in the attachment relationship between a child and their caregiver, however, assumed an evolutionary and biological perspective informed by ethological theory that was significantly influenced by Konrad Lorenz and his study of imprinting in birds (Bowlby, 1982; Cassidy, 2018; Swartz et al., 2017). Lorenz's work focused primarily on the behaviour of birds within an evolutionary context regarding their need for safety and protection during their most formative, and vulnerable stage of life (Swartz et al., 2017). Similarly, attachment theory emphasises that children have an evolutionary basis for establishing attachments to their caregivers as the adaptive functions thereof promote their survival and eventual reproductive success through proximal closeness to their caregiver (Bowlby, 1982; Cassidy, 2018; Swartz et al., 2017).

It should be noted, however, that more recently, various researchers, practitioners, and clinicians have raised critiques of attachment theory and its claim to universality (Thompson et al., 2022; Vicedo, 2020). Many have argued that, over time, the typical structure of a nuclear family has adapted and evolved, and in many non-Western countries, parenting constellations have changed significantly (Thompson et al., 2022; Vicedo, 2020). Although it has been acknowledged that strides have been made in updating our understanding of how attachment theory fits into these new parenting constellations, and family structures, significant work still needs to be done to ensure that attachment theory takes into account the uniqueness of non-western cultures and the diversity found in non-Western populations and their ways of parenting and interacting with their children (Thompson et al., 2022; Vicedo, 2020).

2.2.2. Attachment Behaviours: The Role of Proximity-Seeking

Attachments develop as an affectional bond that a child instinctively forms with an attachment figure, referred to as an attachment relationship, due to their innate need to survive the harsh realities of the external world (Fearon & Roisman, 2017; Holmes, 2015; Juang et al., 2018). These attachment figures are people who children identify as being wiser, stronger, and older than themselves, and are, most often, the child's primary caregiver (Ainsworth, 1979; Bowlby, 1988; Kail & Cavanaugh, 2017). Subsequently, the function that these attachment figures serve for a child is that they are capable of mitigating the adverse effects of being in a state of distress as a child is incapable of doing so on their own during their most formative years of life when they are most vulnerable (Bahmani et al., 2022; DePasquale & Gunnar, 2020; Heinonen et al., 2018).

Bowlby further highlighted that as an attachment relationship forms, reciprocal and mutual interactions take place between an attachment figure and the child (Bowlby, 1982; Chong et al., 2024). A child will demonstrate and communicate to their attachment figure, using several attachment behaviours, what their emotional state is at the time (Bowlby, 1982; Chong et al., 2024). Children may cry, reach out to their attachment figures or cling to them in order to communicate distress, a need for comfort, or possible feelings of insecurity. Alternatively, children may smile to demonstrate feelings of comfort or happiness (Bowlby, 1982; Chong et al., 2024). Through the reciprocal nature of an attachment relationship, attachment figures will then respond accordingly (Ainsworth, 1979; Lionetti, 2014; Ma et al., 2021). This reciprocal interaction between child and caregiver then informs how a child will ultimately come to react to distressing situations and how they will self-regulate their emotions when needed (Lionetti, 2014; Ma et al., 2021).

Oftentimes, children will engage in behaviours that seek to establish and maintain physical proximity to their attachment figure, which is believed to be a behavioural strategy employed by children with the intention of regulating any distress they may be experiencing and re-establishing feelings of safety and security (Bowlby, 1982; Bowlby, 1988; Chong et al., 2024). Moreover, this affords caregivers the opportunity to demonstrate their support of their child thus eliciting an increased degree of comfort for the child (Bowlby, 1982; Bowlby, 1988; Chong et al., 2024). This behavioural strategy of establishing and maintaining physical proximity to an attachment figure has been found to be significantly influenced by the quality of the care that the child can expect to receive from their attachment figures informed by their prior real-world experiences of their caregiver's ability to respond to their emotions when

experiencing a distressing situation (Ainsworth, 1979; Lionetti, 2014; Ma et al., 2021; Tabachnick et al., 2021).

2.2.3. The Caregiver's Role as a Secure Base and Safe Haven

Bowlby and Ainsworth believed that by serving the function of both supporter and protector for a child, an attachment figure establishes what is referred to as a secure base and safe haven (Ainsworth, 1979; Bowlby, 1988; Fearon & Belsky, 2018; Groh et al., 2012). A secure base refers to a caregiver's ability to remain a consistent and stable presence within the child's life whereby they are capable of offering the child a sense of emotional safety through being available to them when they are distressed (Ainsworth, 1979; Bowlby, 1988; Grossmann & Grossmann, 2020). Additionally, by functioning as a secure base for a child, caregivers provide them with the confidence to explore their external world through offering them encouragement as well as physical and emotional support (Ainsworth, 1979; Bowlby, 1988; Grossmann & Grossmann, 2020).

In conjunction with caregivers being representative of a secure base, the caregiver's function as a safe haven involves providing their child with the necessary support and comfort to regulate their distress (Ainsworth, 1979; Bowlby, 1982; Bowlby, 1988; Grossmann & Grossmann, 2020). When a caregiver functions as a safe haven, over and above being a secure base for their child, they do so through the use of emotional reassurance and approaching their child's distress in a responsive and nurturing manner (Ainsworth, 1979; Bowlby, 1982; Bowlby, 1988; Grossmann & Grossmann, 2020). They assume the role of the source of comfort and soothing that a child needs in order to regulate their distressing emotions thus allowing them to, once again, confidently explore their external world (Ainsworth, 1979; Bowlby, 1988; Grossmann & Grossmann, 2020). The purpose of this is to allow the child to develop an increased capacity for self-regulation as their attachment figures model for them ways to regulate their distress (Bowlby, 1988; Fearon & Belsky, 2018; Groh et al., 2012).

Additionally, the secure base and safe haven function as a way for a child to experience a sense of proximal closeness to their attachment figure while learning how to be independent. They develop a sense of trust in their attachment figures and assume the perception that should they experience any distress, they can rely on their attachment figure to offer them support, warmth, comfort, and attention (Ensink et al., 2019; Fearon & Belsky, 2018; Groh et al., 2012). The child's ability to adequately learn how to self-regulate is further dependent on the degree of parental sensitivity employed by their attachment figures and may have a substantial

influence on the quality of the attachment formed between the child and their caregiver (Ainsworth, 1979; DePasquale & Gunnar, 2020).

2.2.4. Parental Sensitivity as a Precursor to Attachment Security

Referred to by Ainsworth as maternal sensitivity, parental sensitivity is the ability of an attachment figure to be responsive to their child's needs and attuned to their emotional state (Ainsworth, 1979; DePasquale & Gunnar, 2020). This implies that a child will experience adequate sensitivity when their attachment figure is able to effectively interpret the cues communicated to them by their child and identify their emotional states (Ainsworth, 1979; DePasquale & Gunnar, 2020). Additionally, adequate sensitivity requires that the attachment figure be able to respond to their child's needs in a timeous manner so as to mitigate the adverse effects of the distress they may be experiencing thus regulating their emotions for them (DePasquale & Gunnar, 2020; Fearon & Belsky, 2018; Keller, 2013). DePasquale and Gunnar (2020) further emphasise that adequate sensitivity is dependent on an attachment figure's ability to adapt accordingly to the unique individual characteristics of their child and to display a high degree of flexibility regarding their responses to their child's distress as the given context thereof may require alternative reactions. These contexts may influence the predictable and expected behaviours of the child when in a position of distress and, due to this, the attachment figure needs to respond accordingly to ensure adequate emotional regulation thus eliciting a healthier attachment relationship (Ainsworth, 1979; Fearon & Belsky, 2018).

Furthermore, DePasquale and Gunnar (2020) highlight that a high degree of sensitivity is influenced by the degree of nurturance that an attachment figure can offer a child. This implies that inasmuch as a parent is required to be supportive and sensitive towards their child in instances of distress, they are also required to be available and present for the betterment of the attachment relationship and, consequently, their child's development (Ainsworth, 1979; DePasquale & Gunnar, 2020). This implies, that an attachment figure, needs to assume an active role within their child's life thus ensuring that they consistently interact with their child in such a way that is conducive to the development of a healthy attachment relationship (Ainsworth, 1979; Eason & Ramani, 2017; Wängqvist et al., 2022). A parent is required to not only meet the physical needs of the child for their survival, but they are also required to meet the emotional needs of the child by establishing a warm, supportive, and nurturing environment for the child wherein they are more capable of thriving and developing in a healthy manner (Ainsworth, 1979; Eason & Ramani, 2017; Wängqvist et al., 2022).

The benefit of this is that parental sensitivity and nurturance play a crucial role in the development of increased empathy and peer acceptance in a child (Ainsworth, 1979; Eason & Ramani, 2017; Wängqvist et al., 2022). Subsequently, this leads to an increased capacity for self-regulation and, as a result, the child becomes better equipped to manage the adverse effects of distress both during childhood, as well as their later life (Ainsworth, 1979; DePasquale & Gunnar, 2020; Gerlach et al., 2022; Wängqvist et al., 2022). Moreover, this implies that in addition to the degree of parental sensitivity and nurturance displayed by an attachment figure, parenting, in general, plays a vital role in the development of a child as a result of the influence this has on the development of a healthy attachment relationship and thus serving as a precursor to attachment security (Ainsworth, 1979; Fearon & Belsky, 2018). This relationship between parental sensitivity and attachment security in children is now well established in the literature on childhood attachment (De Wolff & van IJzendoorn, 1997; Montealegre-Ramón et al., 2024).

2.2.5. Patterns of Attachment

When the quality of parental care that an attachment figure provides is experienced as sensitive and nurturing, a child is believed to be more likely to develop what Ainsworth highlighted as a secure attachment. This implies that the child is more likely to seek out proximal closeness to their attachment figures when experiencing distress with the intention of gaining comfort and support from them, thus resulting in the regulation of their adverse emotions (Ainsworth, 1979; Fearon & Belsky, 2018). Additionally, these children are believed to be more likely to explore their external environments in the presence of their caregivers with an increased degree of confidence as a result (Ainsworth, 1979; Fearon & Belsky, 2018). Secure attachment makes it easier for a caregiver to soothe the child as they are more likely to display a higher degree of trust in their attachment figure and view them as a secure base and safe haven (Lionetti, 2014; Ma et al., 2021; Tabachnick et al., 2021).

It should be noted, however, that although adequate or adaptive parenting can serve as a protective factor for a child's healthy development, inadequate, and maladaptive, parenting can also function as a risk factor that elicits the development of what Ainsworth referred to as an insecure attachment (Ainsworth, 1979; Eason & Ramani, 2017; Gerlach et al., 2022). When a child presents with an insecure attachment, they are more likely to display a higher degree of distrust in their attachment figure and may be harder to soothe as they are more likely to view their caregivers as uncaring, cold, and possibly distant (Ainsworth, 1979; Lionetti, 2014; Ma et al., 2021; Tabachnick et al., 2021). Consequently, they are more likely to view their external world as demanding and dangerous thus eliciting a higher degree of emotional dysregulation.

Additionally, they are more likely to seek less proximal closeness to their caregiver, as they will not trust their capability to regulate their emotions for them (Ainsworth, 1979; Lionetti, 2014; Ma et al., 2021; Tabachnick et al., 2021).

Ainsworth further delineated insecure attachment into two distinct patterns that vary according to the style of parenting that is employed by the attachment figure (Ainsworth, 1979; Fearon & Belsky, 2018). She postulated that when attachment figures are characteristically absent or assume a less involved, or even uninvolved stance in their parenting, the child is more likely to develop what she referred to as an insecure-avoidant attachment. This implies that the child will be more likely to engage in increased self-isolating behaviour and display withdrawing tendencies as a result of a lower degree of emotional expression from their caregivers (Ainsworth, 1979; Holmes, 2015; Ma et al., 2021; Tabachnick et al., 2021). These children are more likely to experience a degree of discomfort regarding the expression of emotions and are more likely to explore their external environments without need for proximity to their caregivers as they do not trust their caregiver's ability to aid them when in need (Ainsworth, 1979; Holmes, 2015; Ma et al., 2021; Tabachnick et al., 2021). These children will demonstrate an excessive, and inappropriate amount of independence with regards to their exploration of their external environments (Ainsworth, 1979; Holmes, 2015; Ma et al., 2021; Tabachnick et al., 2021).

Alternatively, when the style of parenting that is employed by an attachment figure is characteristically inconsistent or unpredictable, the child is more likely to develop an insecure-ambivalent/resistant attachment. This implies that the child will display a high degree of distress when separated from their caregivers and will engage in increased proximity-seeking behaviour or separation protest (Ainsworth, 1979; Carli et al., 2024; Fearon & Roisman, 2017; Juang et al., 2018; Kuo et al., 2019). However, they will become difficult to soothe as a result of resisting attempts made by their caregivers to comfort them (Ainsworth, 1979; Fearon & Roisman, 2017; Juang et al., 2018; Kuo et al., 2019). This style of parenting elicits a significant degree of fear and anxiety in the child that they may be subjected to further separation from their caregiver, and as a result, they are more likely to disengage from the process of exploring their external environment due to a lack of confidence and the perception that it is unsafe to do so (Ainsworth, 1979; Fearon & Roisman, 2017; Juang et al., 2018; Kuo et al., 2019).

In some instances, children can be subjected to maladaptive situations or experiences during their most formative years that may be perceived as stressful, and potentially threatening to their survival (Carrera et al., 2019; Harmon-Jones & Richardson, 2021; Yazgan et al., 2021). These experiences include the employment of harmful or violent forms of discipline, physical

or emotional abuse, parental neglect or the loss of a caregiver, parental substance abuse, inadequate and potentially harmful living environments, being placed in foster care, and exposure to violence (Carrera et al., 2019; Harmon-Jones & Richardson, 2021; Yazgan et al., 2021). These experiences are referred to as early childhood adversity (ECA) and it was postulated by American Psychologist, Mary Main, that ECA can significantly hinder the development of a secure attachment (Fearon & Belsky, 2018; Main & Solomon, 1986).

It has been highlighted that as a result of being exposed to ECA, a child is more prone to developing a disorganised attachment. When this occurs, the style of parenting that is often employed, may elicit a significant degree of fear and confusion in a child because the parent is experienced as both the source of safety and the source of danger, simultaneously. As such, the child is more prone to disorganisation of the attachment system, displaying conflicting and fragmented reactions to distress (Heinonen et al., 2018; Main & Solomon, 1986; Shonkoff & Garner, 2012). The implication of this is that this style of parenting places the child in an 'avoid-approach dilemma'. The child's perception of their caregiver's ability to regulate their emotions becomes blurred thus eliciting a sense of uncertainty in the child as they seek closeness to their caregivers when experiencing distress, however, they are uncertain of the safety of doing so (Heinonen et al., 2018; Main & Solomon, 1986; Shonkoff & Garner, 2012). The belief is that the child may view this proximity as a source of further distress as opposed to a source of warmth, comfort, and support necessary to mitigate the adverse effects of their prior distress (Ensink et al., 2019; Fearon & Belsky, 2018; Lionetti, 2014; Tabachnick et al., 2021). Moreover, it is believed that the development of a disorganised attachment places a child at higher risk for the development of severe psychopathology in their later life than that of the other patterns of attachment insecurity (Heinonen et al., 2018; Main & Solomon, 1986; Shonkoff & Garner, 2012).

2.2.6. Additional Factors Influencing Attachment Relationships

The development of either a secure or insecure attachment, however, is not solely influenced by the quality of parental care displayed by a caregiver. Indeed, while the association between sensitivity and attachment security is robust and has been established meta-analytically (e.g., De Wolff & van IJzendoorn, 1997), the size of the effect is small, suggesting that factors additional to sensitivity also play a role in the development of attachment security. Bowlby and Ainsworth postulated that additional psychological, social, and environmental factors should be taken into consideration (Fearon & Roisman, 2017; Juang et al., 2018; Kuo et al., 2019).

From a psychological and environmental perspective, for example, the mental health of a child's parents may influence the degree of parental sensitivity and nurturance that they are able to provide. Should a parent struggle with mental ill-health, they are more likely to find it challenging to be adequately attuned to their child's emotional state as a result of the caregiver's limited emotional capacity to self-regulate in addition to regulating their child's emotional distress. Thus, they are less likely to be adequately responsive to their needs in a timeous manner (Fearon & Roisman, 2017; Juang et al., 2018; Kuo et al., 2019). The child in this instance is more likely to experience heightened levels of dysregulation when distressed resulting in internalising and externalising symptomology (Fearon & Roisman, 2017; Juang et al., 2018; Kuo et al., 2019) These children may struggle to self-regulate their emotions and behaviours and may struggle to seek physical proximity to their caregivers as they may not view them as supportive or capable enough to regulate their distress for them. The implication of this is that a child may become difficult to soothe which may influence the attachment they develop (Fearon & Roisman, 2017; Juang et al., 2018; Kuo et al., 2019). When a parent displays a higher degree of adaptability and stability, they are more likely to be self-regulated, and thus, they will be better equipped to manage and regulate the adverse emotions experienced by their child in a time of distress (Fearon & Roisman, 2017; Juang et al., 2018; Kuo et al., 2019).

Additionally, the dynamics present within the family, as well as the structure thereof, may further influence the development of either a secure, or insecure attachment (Bureau et al., 2021; Fraley & Heffernan, 2013). Family discord may result in modelled behaviour that elicits the development of an insecure attachment, and a lack of social and familial support may result in the display of inadequate parental sensitivity or nurturance (Bureau et al., 2021; Fraley & Heffernan, 2013). This is often present in situations whereby a child's parents are divorced, separated, or when there is a death of one or both parents, for example. Additionally, this is frequently observed in the case of families struggling due to socioeconomic constraints as a result of the stress that this places on the family structure and the significant role players therein (Bureau et al., 2021; Fraley & Heffernan, 2013).

Furthermore, social factors that may influence the development of either a secure or insecure attachment are often present as a result of the influence that culture, religion, and society, in general, has on the manner in which a parent raises their child (Branscombe & Baron, 2017; Petro et al., 2018; Sorkhabi, 2012). In some instances, parents may feel less inclined to display parental sensitivity and nurturance as this does not conform to the expected social norms present as part of their culture or religion (Branscombe & Baron, 2017; Petro et al., 2018; Sorkhabi, 2012). It is believed that these sociocultural factors significantly shape the

caregiving practices and behaviours employed by a caregiver. This implies that the style of parenting may be significantly shaped by the cultural and religious norms of the family (Branscombe & Baron, 2017; Petro et al., 2018; Sorkhabi, 2012). Furthermore, in some instances, for example, the caregiver or guardian of the child may not be their biological parents and may be their extended family members, consistent with cultural norms (Branscombe & Baron, 2017; Petro et al., 2018; Sorkhabi, 2012). Consequently, the child is likely to experience changes in their attachment figures over time and as such, this inconsistent care may elicit the development of an insecure attachment. This, however, may also function as a protective factor that increases the likelihood of the development of a secure attachment as the support provided to the child's parents by the extended family may result in them being more adequately attuned and responsive to their child (Fearon & Roisman, 2017; Juang et al., 2018; Kuo et al., 2019). It should also be noted that when a child experiences changes in their attachment figures, they develop what is referred to as an attachment network of multiple different attachment figures (Carli et al., 2020). Although this may increase the risk of the child developing an insecure attachment, this risk is decreased when the child has experienced at least one of their attachment figures as positive and develops a secure attachment towards this caregiver (Carli et al., 2020).

A further significant factor that could contribute to the development of either a secure or insecure attachment is that of life transitions and stressors (Fearon & Roisman, 2017; Juang et al., 2018; Kuo et al., 2019). The reason for this is that due to significant life transitions such as moving to a new home or school, being placed in foster care and moving from one foster home to another, or having a divorced parent enter into multiple different romantic relationships, for example, a child may experience their external world as unstable and unpredictable (Fearon & Roisman, 2017; Juang et al., 2018; Kuo et al., 2019). This may result in feelings of uncertainty and anxiety which leaves them more prone to the development of an insecure attachment (Fearon & Roisman, 2017; Juang et al., 2018; Kuo et al., 2019). Additionally, the experience of significant stressors may result in the development of an insecure attachment when these stressors are experienced by parents, as in the case of a family experiencing socioeconomic difficulties which may impact their ability to be attuned and responsive to their child (Fearon & Roisman, 2017; Juang et al., 2018; Kuo et al., 2019). Thus, the child may be more likely to develop an insecure attachment, interfering with their process of healthy development (Fearon & Roisman, 2017; Juang et al., 2018; Kuo et al., 2019). For this reason, it can be noted that significant life stressors and life cycle changes may have a negative impact on the quality of care that a child receives as well as the degree of stability that the child may experience within the home environment (Fearon & Roisman, 2017; Juang et al.,

2018; Kuo et al., 2019). Consequently, this significantly influences the degree of attachment security that the child experiences in addition to the trajectory of their overall development (Fearon & Roisman, 2017; Juang et al., 2018; Kuo et al., 2019).

2.2.7. Importance of Attachment in Child Development

Meta-analytic studies have found that there is a significant correlation between attachment security and the development of positive developmental outcomes such as increased self-regulatory abilities, social-emotional competence, and resilience in response to situations and events that a child may view as distressing (Fearon et al., 2010; Groh et al., 2012; Groh et al., 2017). This implies that when a child develops a secure attachment, they are more likely to adequately regulate their own emotions and will thus be better equipped to navigate and adapt to stressful situations (Fearon & Belsky, 2018; Groh et al., 2012). This is also the result of adequate and effective parental sensitivity and nurturance whereby a caregiver is able to regulate their child's emotions and soothe them accordingly (Perry & Conners-Burrow, 2016). Additionally, through the development of a secure attachment and by possessing the ability to self-regulate one's emotions or have them be regulated by a caregiver, children are more likely to possess a higher degree of peer competence as compared to children who develop an insecure or disorganised attachment (Groh et al., 2017). This implies that a child with a secure attachment is more likely to possess the necessary characteristics and social skills to communicate effectively with others, work collaboratively with their peers, and establish healthy and adaptive interpersonal relationships (Groh et al., 2017).

Conversely, when a child develops an insecure attachment, they are believed to utilise secondary forms of coping with, and adapting to, their distress as they lack the necessary self-regulatory abilities and social skills required to effectively communicate their adverse emotions to others (Fearon et al., 2010; Groh et al., 2012; Groh et al., 2017). This suggests that insecurely attached children may be underdeveloped, socioemotionally, interfering with processes that promote continued healthy development in later life (Groh et al., 2017). These children are more likely to display increased internalising behaviours such as withdrawal tendencies and self-isolation, self-blame and perfectionism, as well as excessive rumination, to name a few (Heinonen et al., 2018; Schroeder et al., 2020). Moreover, they are also prone to displaying increased externalising behaviours such as aggressive outbursts and defiance, impulsivity and rule-/law-breaking, hyperactivity and disruptive behaviour (Fothergill et al., 2016; Shonkoff & Garner, 2012). Therefore, an insecurely attached child is more prone to developing severe psychopathology associated with personality disturbances, conduct disorders, and mood

dysregulation. The implication of this is that this further hinders the child's ability to form healthy and adaptive interpersonal relationships, and as such, their social interactions can become increasingly limited (Fearon et al., 2010; Groh et al., 2017; Tabachnick et al., 2021).

Hence, the attachment developed by a child during their most formative years plays a vital role in their socioemotional development and subsequently greatly influences their mental health (Colonnesi et al., 2011; Craig et al., 2024; Spruit et al., 2020). Findings from a study conducted by Colonnesi et al. (2011) established that a moderate association exists between insecure attachment and child anxiety. Additionally, Spruit et al. (2020) highlighted that insecure attachments were also moderately associated with the development of depression in children. Furthermore, Craig et al. (2024) found that insecure attachments were linked to the development of conduct problems and that maladaptive parent-child relationships increased the likelihood of children developing callous-unemotional traits. This implies that they are less likely to employ adequate empathy in social interactions, and they are more likely to demonstrate an increased degree of apathy towards others and the situations they find themselves in (Craig et al., 2024). This is consistent with meta-analytically established links between attachment security and empathy (Xu et al., 2022). This is crucial to take into consideration as experiences of ECA, in particular, place a child at the greatest risk for the development of an insecure attachment as well as a disorganised attachment which subsequently places them at increased risk for the development of maladaptive behavioural patterns and mental ill-health (Barlow et al., 2016; Bogdanovic et al., 2023; Kim, 2010). Therefore, experiences of ECA also significantly hinder a child's socioemotional development resulting in the establishment of limited interpersonal relationships (Perry & Conners-Burrow, 2016; Schroeder et al., 2020).

2.3. Attachment-Based Interventions

As highlighted above, the development of attachment insecurity/disorganisation has deleterious implications on a child's development and may ultimately derail this process thus possibly hindering aspects of their later life (Kail & Cavanaugh, 2017). Alternatively, it has also been highlighted above that through the development of a secure attachment, a child is more likely to follow a healthier trajectory of development and, subsequently, they are more likely to display more positive later life outcomes (Kail & Cavanaugh, 2017). Accordingly, attachment-based interventions have been developed with the intention of addressing these issues through modifying parenting behaviours to increase the capacity that caregivers have for demonstrating parental sensitivity and nurturance thus ultimately enhancing the quality of the

attachment relationship and achieving more optimal child development (Dozier et al., 2018; Kohlhoff et al., 2022).

This is done through utilising a variety of different techniques aimed toward achieving the common goal of fostering more adaptive parent-child interactions through modifying parenting behaviour (Gregory et al., 2020). These techniques include video-/in vivo commentary, mindfulness practices, and role playing and modelling exercises (Gregory et al., 2020). Oftentimes, these interventions may also make use of psychoeducation, attachment-based family therapy, play therapy, and parent skills training through parent coaching (Gregory et al., 2020). This is particularly the case when children are at higher risk for the development of an insecure or disorganised attachment resulting from exposure to ECA in the form of either abuse or neglect (Crugnola et al., 2016). In many cases, this may be particularly relevant for children who have been exposed to child protective services for the purpose of being placed in foster care or those who have undergone adoption (Crugnola et al., 2016).

Some interventions adopt a behavioural focus that employ techniques that specifically target parenting behaviours and consequently modifying these towards greater sensitivity and, thereby, improving parent-child interactions (Kohlhoff et al., 2022; Pasalich, et al., 2022). A common technique utilised within attachment-based interventions with a particular focus on parenting behaviour is video-feedback of parent-child interactions, usually within the home (Crugnola et al., 2016; Gregory et al., 2020). Video-Feedback Intervention to Promote Positive Parenting and Sensitive Discipline (VIPP-SD; van IJzendoorn et al., 2022) is an example of an attachment-based intervention that centralises video-feedback as its main ‘active ingredient’ in bringing about changes in parenting behaviours. Furthermore, some attachment-based interventions also make use of in-vivo commentary/feedback either to substitute or to complement video-feedback with the intention of modifying parenting behaviour as it occurs. The ABC intervention is an example of an intervention that makes use of both, although it prioritises in-vivo commenting as its ‘active ingredient’, using video-feedback as a secondary and complementary approach (Crugnola et al., 2016; Gregory et al., 2020). While many attachment-based interventions have a behavioural focus that drives change, there are some interventions, however, that focus on revising parental mental representations through enhancing parental reflective functioning (PRF) (Kohlhoff et al., 2022; Pasalich, et al., 2022). Examples of attachment-based interventions that utilise PRF include Mentalisation-Based Treatment for Parents (MBT-P), Parent-Child Interaction Therapy (PCIT), and the Watch, Wait, and Wonder (WWW) intervention, amongst others (Kohlhoff et al., 2022; Pasalich, et al., 2022).

Facompré et al. (2018) and Mountain et al. (2017) highlighted in their meta-analyses that through the implementation of attachment-based interventions, the resulting degree of caregiver sensitivity employed by participating caregivers demonstrated marked improvement. Consequently, it was found that due to enhancing caregiver responsiveness and nurturance, participating children displayed healthier cognitive and emotional developmental trajectories as a result. These researchers attributed this to the increased capacity of participating caregivers to afford their children the necessary degree of safety and security that allowed them to confidently and comfortably explore their external worlds (Facompré et al., 2018; Mountain et al., 2017). Furthermore, Facompré et al. (2018) reported that children who participated in attachment-based interventions were more likely to develop more secure attachments as the interventions were found to challenge and reorganise disorganised attachments that were developed due to experiences of ECA.

Related findings were established in an earlier meta-analysis conducted by Bakermans-Kranenburg et al. (2003) who aimed to establish whether interventions that focused on sensitivity, support, mental representations, or any combination of the three foci were the most effective at increasing the degree of maternal sensitivity employed by caregivers, as well as attachment security. The researchers assessed a total of 81 studies and found that interventions that focused solely on sensitivity, and that utilised video-feedback, were most effective at increasing both maternal sensitivity and attachment security (Bakermans-Kranenburg et al., 2003). Furthermore, the authors found that interventions that were most effective at enhancing sensitivity were also most effective at enhancing attachment security (Bakermans-Kranenburg et al., 2003).

In lieu of the positive effects of the implementation of attachment-based interventions on both parent-/parenting-related outcomes as well as child-related outcomes, these interventions are believed to be an effective tool in fostering the healthy development and adaptive wellbeing of participating children (Facompré et al., 2018; Mountain et al., 2017). In the case of infants and young children between the ages of 6 months and 2 years, their developmental trajectory is believed to be the most susceptible to the influence of external forces (Kail & Cavanaugh, 2017). At this stage of a child's development, they are the most dependent on the quality of the care provided to them by their caregiver, and their early childhood experiences can greatly shape their later life development and capacity for managing and coping with distress (Kail & Cavanaugh, 2017). For this reason, attachment-based interventions may be of particular benefit for children within this age range who have been exposed to ECA (Crugnola et al., 2016; Gregory et al., 2020).

2.4. Attachment and Biobehavioural Catch-Up Intervention

The ABC intervention was originally developed by Mary Dozier for foster parents of vulnerable infants who were exposed to ECA and, as such, were at risk of developing a disorganised attachment (Dozier & Bernard, 2017; West et al., 2022). Well-established psychological theories pertaining to child attachment as well as childhood development function as the foundational theoretical underpinnings informing the development and implementation of the intervention (Dozier et al., 2018). The primary aim of the intervention was to support the development of a healthy parent-child relationship, and to promote the development of a secure attachment through enhancing parent-child interactions and modifying parenting behaviours (Dozier & Bernard, 2017; West et al., 2022). By doing so, the intervention aimed to promote healthier early childhood socioemotional development, and more adaptive behaviour and emotion regulation (Dozier & Bernard, 2017; West et al., 2022). Furthermore, the intervention was designed to encompass an approach focussed on parenting behaviours—as opposed to mental representations—wherein parents are provided with several strategies to aid in developing increased parental sensitivity and responsiveness (Caron et al., 2016; Dozier & Bernard, 2017; Dozier et al., 2018). Moreover, parents are tasked with employing various techniques to enhance their affective exchanges with their child, thus offering them increased warmth and support leading to improved emotion regulation. Consequently, this allows for the establishment of a secure base and safe haven thus allowing the child to feel more comfortable and confident with exploring their external world (Caron et al., 2016; Dozier & Bernard, 2017; Dozier et al., 2018).

Through utilising a parent coaching style of intervention, caregivers are afforded the opportunity to not only learn how to modify their parenting behaviour, but they are also able to undergo the process of insight building. This allows them to better understand how a child develops as well as how the role that a caregiver plays, and the quality of the care that they provide, subsequently impacts their child's development (Dozier & Bernard, 2017; West et al., 2022). Additionally, the ABC intervention targets case-specific challenges experienced by caregivers such as parental withdrawing tendencies, fragmented and inconsistent caregiving, and an inability for a parent to regulate their own emotions in addition to that of their child's (Dozier & Bernard, 2017; West et al., 2022). The aim is to promote stress reduction for the parent, and subsequently, the child, thus allowing the parent to establish more adaptive coping mechanisms. This further reinforces the increased parental sensitivity and responsiveness developed as a result of taking part in the ABC intervention (Dozier & Bernard, 2017; West et al., 2022).

2.4.1. Structure and Implementation of the ABC

The implementation of the ABC is done through a structured attachment-based programme consisting of 10 home visits wherein each session targets a specific area of parenting (Dozier & Bernard, 2017). The primary goal thereof is to modify and adapt parenting behaviours within each session to a position of increased parental sensitivity and responsiveness towards the child, their needs, and their emotional state (Dozier & Bernard, 2017; West et al., 2022). During the first two sessions of the intervention, parents undergo the process of psychoeducation wherein they gather insight regarding parental nurturance and the importance thereof, especially for children exposed to ECA (Dozier et al., 2018). Thereafter, parents learn how to demonstrate more congruent positive affects to their child and display a higher degree of enjoyment throughout their interactions with them in the third and fourth sessions (Dozier et al., 2018). Following this, parents are provided with in-vivo commentary regarding their interactions with their children so as to raise their awareness of specific parenting behaviours that they can employ to enhance the interactions they have with their children. Subsequently, in the fifth and sixths sessions, the intention is to promote less frightening and threatening parenting practices by explaining to parents the implication of these practices for the child's development (Dozier et al., 2018). In the proceeding two sessions, the focus is placed on the past childhood experiences of the parents who are given an opportunity to reflect on their own history and how this potentially influences the parenting practices that they employ (Dozier et al., 2018). This supports the behaviour modification that has taken place by raising parents' awareness of how their past experiences influence their less sensitive parenting behaviours. This insight interrupts this influence as a result and allows the parent to engage in more sensitive and nurturing parenting behaviour (Dozier et al., 2018). A review of progress made, lessons learnt, and skills developed is conducted during sessions nine and ten and difficulties are addressed and refined (Dozier et al., 2018).

Undergoing the ABC intervention allows for greater synchrony between the child and their caregiver as it seeks to challenge previously intrusive and frightening caregiving behaviours displayed by their parents (Caron et al., 2016; Dozier & Bernard, 2017; Dozier et al., 2018). Subsequently, this challenges the avoid-approach dilemma developed by children who have a disorganised attachments thus resulting in the development of increasingly adaptive self-regulatory capacities as well as a more secure pattern of attachment (Caron et al., 2016; Dozier & Bernard, 2017; Dozier et al., 2018).

The ABC make use of techniques such as in-vivo commenting and video-feedback of the real-time interactions between a child and their caregiver to stimulate behaviour change in the parent (Dozier & Bernard, 2017; West et al., 2022). Changes are elicited by encouraging parents to incorporate increased reflective listening behaviours to better interpret cues communicated to them by their children regarding their needs (Dozier & Bernard, 2019; West et al., 2022). Subsequently, this results in the development of increased empathic responsiveness whereby parents are tasked with not only interpreting the cues communicated to them by their children, but to also offer them reassurance, validation, and support (Dozier & Bernard, 2019; West et al., 2022). Parents are coached to ensure that inasmuch as their responsiveness is empathic, it needs to be timeous and, as such, sensitive through enhancing their attunement to their child's emotional state at the time (Dozier & Bernard, 2019; West et al., 2022). Consequently, parents learn how to engage in healthier affective exchanges with their child, thus indirectly promoting behaviour change in the child in the form of the development of an increased comfort with, and confidence in, exploring their external world (Dozier & Bernard, 2019; West et al., 2022). Furthermore, the use of in-vivo commenting and video-feedback techniques allows parents to learn how to better model adaptive emotion regulation and, subsequently, indirectly increase patterns of secure behaviour in their child (Dozier & Bernard, 2019; West et al., 2022). Moreover, this allows parents to learn how to set adequate and age-appropriate limits that are not perceived as threatening and frightening (Dozier & Bernard, 2019; West et al., 2022). Consequently, parents develop insight into ways in which they can establish and implement more consistent and predictable patterns of parenting behaviours. This is done with the intention of enhancing the child's capacity for self-regulation and socioemotional development (Dozier & Bernard, 2017; Dozier et al., 2018; Gregory et al., 2020).

2.4.2. Dissemination Practices

The ABC intervention was developed as a manualised intervention thus allowing for the availability of an outline of the structure and standardised protocol pertaining to the intervention implementation (Roben et al., 2021). This implies that all procedures, techniques, and components found within the intervention are clearly outlined resulting in a higher degree of implementation consistency and fidelity across contexts (Roben et al., 2021).

The training of parent coaches takes place at dissemination sites across the United States of America, as well as several sites globally (Dozier et al., 2018). Parent coaches also undergo the process of clinical supervision with members of the ABC development team,

augmenting quality assurance (Carmody et al., 2023; Dozier et al., 2018; Roben et al., 2021). Although there is a significant demand for further dissemination and for the implementation of the ABC intervention to be scaled up, there are several barriers hindering this process (Dozier et al., 2018). In as much as the intervention goals are believed to be achievable and direct, concern has been raised that the potential of deviating from the expected implementation protocol is significant and may result in adverse implications for participants (Dozier et al., 2018). Additionally, training parent coaches has been described as a time-intensive process that requires significant resources to ensure that implementation protocols are followed adequately and that parent coaches are capable of using the in-vivo commentary in the expected manner (Dozier et al., 2018). Furthermore, supervisors need to be carefully selected as they must have an adequate grasp of both evidence-based treatments regarding early childhood, and the implementation of the ABC intervention (Dozier et al., 2018). Attempts to scale up the ABC, however, have been made as the developers of the intervention have reportedly engaged several efforts to establish new partnerships with additional dissemination sites capable of training and supervising parent coaches (Carmody et al., 2023; Dozier et al., 2018; Roben et al., 2021)

Initially the intervention was designed for foster parents of infants between the ages of six months and two years who were exposed to ECA; however, this target population was later adapted to include children at risk of being exposed to ECA who were living with their biological parents (Dozier et al., 2018). The reason for this was that due to the number of children placed in foster care in the United States of America, many at-risk children were found to be returned to their biological families rather than being placed in a foster home (Dozier et al., 2018). Subsequently, parenting practices addressed within the intervention were further modified to become context specific as parenting behaviours were found to be more threatening and frightening for children who were returned to their biological families rather than being placed in foster care (Dozier et al., 2018). Furthermore, the intervention underwent further adaptation as it was established that many of the children placed in foster care fell outside of this age range and required accommodation on a case-specific basis (Dozier et al., 2018). For this reason, the ABC for toddlers (ABC-T) intervention was developed to meet the needs of an older population of children who were also exposed to ECA and were at risk of the development of a disorganised attachment (Dozier et al., 2018). Consequently, the original ABC intervention was renamed the ABC for infants (ABC-I) intervention (Dozier et al., 2018).

Modification of the ABC intervention continued as practitioners, researchers, and policymakers attempted to establish unique use cases for the implementation of the intervention with unique populations who remained at risk of developing a disorganised attachment. One

such adapted form of the ABC intervention is that of the modified ABC intervention (mABC) which was adapted with the intention of reorganising the attachments of opioid-exposed infants (Tabachnick et al., 2021). Additionally, the intervention was established as a supplementary treatment to aid in improving attachment relationships between mothers receiving opioid agonist therapy to treat their opioid dependency, and their children (Tabachnick et al., 2021).

Another unique use case that was established for the implementation of the ABC intervention was to target a population of children diagnosed with intellectual disabilities or developmental delays in South Africa (Mohamed et al., 2023a). Children presenting with intellectual disabilities are believed to demonstrate emotional cues that may often be misinterpreted by their caregivers thus interfering with the degree of sensitivity that a caregiver may display towards their child. Moreover, Mohamed et al. (2023b) highlighted that caregivers of children with intellectual disabilities are more likely to employ intrusive and frightening parenting behaviours and may struggle to follow the lead of their child as a result. This may lead to increased frustration for both the caregiver and the child thus demonstrating the potential benefits of adapting the ABC intervention to this particular target population (Mohamed et al., 2023b).

2.4.3. Child-Related Outcomes of the ABC

Studies evaluating the effectiveness of the ABC intervention have investigated a range of child-related outcomes including, cortisol regulation patterns, self-regulatory capacities, and cognitive development. When children are exposed to ECA in the form of abuse or neglect, they are at higher risk for increased production of cortisol, and chronic cortisol elevates, due to the ongoing stress associated with these experiences (Bernard et al., 2015b; Bernard et al., 2015c Grube & Liming, 2018). This is significant due to the toxic nature of prolonged exposure to cortisol on a neurological level which may result in later life health complications and metabolic changes (Bernard et al., 2015b; Bernard et al., 2015c Grube & Liming, 2018). For this reason, the effects of the ABC on cortisol regulation have been the subject of investigation. Overall, the findings suggest that when exposed to the intervention, children demonstrated steeper negative cortisol regulation patterns throughout the day than children exposed to a control intervention (Bernard et al., 2015b; Bernard et al., 2015c; Dozier et al., 2008). This implies that from the time of waking up, to the time of going to bed, children exposed to the ABC intervention experience a more significant decline in their levels of cortisol over the course of the day than children exposed to a control intervention (Grube & Liming, 2018). This

is indicative of a more normative pattern of diurnal cortisol production, suggesting that the ABC has a positive effect on cortisol regulation in at-risk children.

Additionally, given the well-established links between attachment and children's internalising and externalising behaviours (Fearon et al., 2010; Groh et al., 2012), this has also been investigated in relation to the effects of the ABC. Studies have highlighted that when exposed to the ABC intervention, participants displayed statistically significant improvements in their capacity to regulate both their internalising and externalising behaviours (Lind et al., 2014; Sprang, 2009). These children were also more likely to demonstrate improvements in the quality of their attachments which resulted in improved self-regulatory behaviours (Bernard et al., 2012; Dozier et al., 2009; Hepworth et al., 2020). When compared to children exposed to the Developmental Education for Families (DEF) program, those children who participated in the ABC intervention were more likely to develop a higher degree of attachment organisation in addition to improved attachment security (Bernard et al., 2012; Dozier et al., 2009; Zajac et al., 2020). These children also demonstrated increased social competence and experienced healthier peer relationships as a result of engaging in more prosocial behaviour (Lind et al., 2021; Yarger et al., 2022). Through the intervention, they also learned how to better empathise with others (Lind et al., 2021; Yarger et al., 2022), were found to demonstrate greater emotion regulation and, consequently, expressed a lower degree of adverse emotions as compared to the children in the DEF control group (Lind et al., 2014; Sprang, 2009).

Furthermore, RCTs conducted by Bernard et al. (2017) and Lewis-Morrarty et al. (2012) showed that the ABC intervention resulted in more normative cognitive development, specifically language abilities. Additionally, ABC recipient children are more likely to develop more effective problem-solving skills as they become more comfortable with exploring their external worlds (Bernard et al., 2017; Lewis-Morrarty et al., 2012). Findings demonstrated that when exposed to the ABC intervention, children displayed increased levels of cognitive flexibility and Theory of Mind, demonstrating that their executive functioning also appeared to be more strongly developed when compared to children of the DEF control group (Bernard et al., 2017; Lewis-Morrarty et al., 2012). There is, therefore, a noteworthy body of high-quality evidence (i.e. from RCTs) supporting the effects of the ABC on a wide range of child-related outcomes.

2.4.4. Parent/Parenting-Related Outcomes of the ABC

Inasmuch as the ABC intervention is an attachment-based intervention aimed at eliciting changes in the behaviour of children at risk of developing disorganised attachments,

it is essentially a parenting intervention. Many of the changes observed in children who have taken part in the ABC intervention occur secondary to, or indirectly as a result of, changes in a caregiver's parenting behaviours (Bick & Dozier, 2013; Facompré et al., 2018; Mountain et al., 2017). For this reason, the ABC intervention has also been evaluated in respect of parent/parenting-related outcomes.

The literature suggests that through participating in the ABC intervention, caregivers developed increased parental sensitivity and thus demonstrated a higher capacity for being adequately responsive to their child's needs and attuned to their emotional states (Berlin, 2014; Velez, 2015; Yarger et al., 2016; Yarger et al., 2020). This is further enhanced by the development of more adaptive coping mechanisms for the caregiver and subsequently improved stress management as a result of the intervention (Bick & Dozier, 2013). The implication is that caregivers who are exposed to the ABC intervention are more likely to develop an enhanced sense of parental confidence thus eliciting improvements in emotional availability and improved self-efficacy (Berlin, 2014; Velez, 2015; Yarger et al., 2016; Yarger et al., 2020). Additionally, caregivers who participated in the ABC intervention were found to demonstrate decreased levels of intrusive and frightening behaviours that may impede their child's autonomy and ability to freely and confidently explore their external world, improving the quality of parent-child interactions (Yarger et al., 2016; Yarger et al., 2020). Relatedly, the ABC intervention was also found to result in fewer negative perceptions regarding infant crying and less minimisation of infant distress, which suggests improved parental sensitivity (Thorpe et al., 2021; Yarger et al., 2018). The implication is that these caregivers demonstrated a higher capacity for employing more sensitive and responsive parenting thereby offering their children more reassurance and nurturance when distressed (Berlin, 2014; Velez, 2015). Therefore, in addition to child-related outcomes, the ABC has also been shown to have significant positive effects on a range of parent/parenting-related outcomes.

2.4.5. Longitudinal Effects of the ABC

Several follow-up studies have also been conducted to assess whether the effects of the ABC intervention are maintained over time. In a study conducted by Lind et al. (2020), findings indicated that parents who were exposed to the ABC intervention displayed a higher degree of parental sensitivity one-month post-intervention. Additionally, when the participating children had reached three years of age, a follow-up study found that, although not statistically significant, parents exposed to the ABC intervention engaged in increased levels of parental sensitivity for a longer duration of the interaction between caregiver and child as compared to

the control group (Lind et al., 2020). Furthermore, the study set out to examine the degree of compliance that a child displayed as a result of limits set by their caregiver (Lind et al., 2020). Findings suggested that children exposed to the ABC intervention engaged in increased childhood compliance as compared to the control group. Furthermore, their degree of compliance at the three-year-old follow-up was found to be mediated by the degree of sensitivity displayed by their caregiver at the one-month follow-up (Lind et al., 2020).

In a study conducted by Zajac et al. (2020), follow-up assessments were conducted at age nine among children who had received the ABC during infancy. The participating children were tasked with completing the Kerns Security Scale, a self-report questionnaire regarding a child's self-perception of their attachment security. The findings suggested that the participating children perceived having a higher attachment security as compared to control groups (Zajac et al., 2020). This indicated that the ABC intervention promotes greater attachment security during infancy, and that these effects are sustained into middle childhood (Zajac et al., 2020).

Moreover, longitudinal studies have also indicated that at three-year-old follow-up, the waking cortisol levels of children previously exposed to the ABC intervention remained higher than those exposed to the control condition (Bernard et al., 2015c). However, a significant decline in cortisol levels from diurnal to nocturnal production was found for children exposed to the ABC intervention (Bernard et al., 2015c). This suggests that when exposed to the ABC intervention, children are better equipped to manage and regulate their cortisol levels through better regulating their reactions to distressing situations and that this effect is sustained over time (Bernard et al., 2015c).

In addition to studying the longitudinal effects of the ABC intervention on the cortisol regulation patterns of participating children, Gaudreau et al. (2024) highlight that the ABC has further longitudinal effects on children's receptive language abilities. Two years post-intervention, children exposed to the ABC were found to display better developed receptive language abilities as compared to control groups (Gaudreau et al., 2024).

These findings suggest that many of the studies and established effects of the ABC intervention are sustained over time, especially from the time of administration to when the participating children reach the age of three-years-old. In some cases, some of the aspects of childhood attachment and development are even seen to be sustained up to the point where the child has reached the age of nine (Grube & Liming, 2018; Lind et al., 2020; Zajac et al., 2020), augmenting the longevity of the positive effects of the ABC on child development.

2.4.6. Moderators and Mediators

One of the most significant moderators of the effects of the ABC intervention is when a child's caregiver has experienced their own personal history of ECA. These caregivers are more likely to engage in less sensitive parenting and display a higher degree of parental hostility thus making their parenting behaviours appear more frightening and threatening to a child (Perrone et al., 2021). Children whose caregivers have experienced their own history of ECA are also more prone to engaging in child abusing behaviours and are more likely to have developed psychopathology, which further influences their ability to be adequately attuned and responsive to their child's needs (Perrone et al., 2021). The implication thereof is that this may hinder the progress made by participating caregivers who have personal, unprocessed experiences of ECA or other forms of abuse (Perrone et al., 2021).

Furthermore, the degree of parental sensitivity displayed by a child's caregiver during infancy has been identified as a possible mediator of the effects of the ABC intervention. This can be seen in the association between the effects of the ABC intervention and the diurnal cortisol regulation patterns displayed during middle childhood, which has been found to be mediated by sensitivity (Garnett et al., 2020). Hence, the intervention's effect on cortisol regulation is indirect, via sensitivity, highlighting the crucial role of sensitivity in child developmental outcomes. Similar findings were made by Gaudreau et al. (2024) who highlighted that through the employment of increasingly sensitive parenting, children were found to have indirectly developed and enhanced their receptive language abilities. This was associated with the open line of communication that was established between a parent and their child as a result of the implementation of the ABC intervention (Gaudreau et al., 2024). Additionally, through the use of more sensitive language and adaptive communication between caregiver and child, effective communication was modelled for the children thus resulting in enhanced language development (Gaudreau et al., 2024).

Moreover, many studies have found that the race, age, gender, and socioeconomic status of the participants were of minor significance with regards to mediating or moderating the effects of the ABC intervention (Grube & Liming, 2018; Lind et al., 2020; Zajac et al., 2020). In many of the studies conducted, the effects of the ABC intervention were found to remain significant despite controlling for demographic variables (Grube & Liming, 2018; Lind et al., 2020; Zajac et al., 2020). It should be noted, however, that the living circumstances of children participating in the ABC intervention is of particular importance as this may alter the effectiveness of the outcomes thereof (Grube & Liming, 2018). In some cases, children remained within their high-risk biological families, whereas other children were living with

their foster families at the time of implementation of the ABC intervention (Grube & Liming, 2018). This resulted in variance being established within the effects of the ABC intervention (Grube & Liming, 2018).

In sum, due to the number of RCTs available, the ABC intervention possesses a significant evidence-base supporting its effectiveness (Roben et al., 2021). Currently, one systematic review exists pertaining to the child-related outcomes of the ABC intervention (Grube & Liming, 2018). However, since the publication of this review, several additional studies have been published thus necessitating an updated synthesis of the literature pertaining to the effectiveness of the ABC intervention. Moreover, parent/parenting-related outcomes of the intervention not included in Grube and Liming's (2018) systematic review. Inasmuch as the ABC intervention is an attachment-based intervention, the primary goal is to modify parenting behaviours to elicit secondary changes in their child (Dozier et al., 2018). Hence, parents are at the forefront of the ABC, and for this reason, they constitute a vital population to take into consideration when synthesising and summarising the effectiveness of the ABC intervention. This allows for a clearer and more concise understanding of the effects of the ABC intervention for researchers, practitioners, and policymakers who intend to utilise or further study the intervention. For this reason, the current review provides a comprehensive summary of both the child-related and parent-/parenting-related outcomes of the ABC intervention.

2.5. Conclusion

The above review of the literature pertaining to child attachment, and attachment-based interventions, such as the ABC intervention, demonstrates that the developmental trajectory of a child is significantly influenced by the quality of the caregiver-child attachment relationship. In some instances where parenting is characteristically frightening or intrusive and caregivers demonstrate a lack of sensitivity and responsiveness to their child's emotional state, children are more likely to develop an insecure or disorganised attachment. In instances where children are exposed to ECA, they are particularly prone to the development of a disorganised attachment which may have deleterious implications for their developmental trajectory. The ABC intervention is one example of an attachment-based intervention that aims to modify or adapt parenting behaviours to promote increased parental sensitivity and responsiveness. The overarching resulting effect is the development of attachment security, improved cortisol regulation patterns, increased self-regulatory capacities, and healthier and more normative developmental trajectories.

Chapter3: Research Methodology

3.1. Introduction

This chapter provides an in-depth description of the research methodology utilised for the current study. The chapter will begin by describing the research design used for the current study, and providing an explanation for how this may contribute to the aim of summarising and synthesising, qualitatively, the literature supporting the ABC intervention. Thereafter, a step-by-step description will be provided with regards to the search strategy adopted for the study and how the PICO framework was applied. This will include information related to the data collection stage, screening phase, and subsequent methodological quality evaluation phase of the study. Furthermore, the data extraction and synthesis process will be outlined in detail so as to explain how the information from the final sample of articles has been interpreted and used for the current review. Lastly, a brief description of the manner in which methodological rigour was maintained will be provided.

3.2. Research Design

In order to achieve the study's aim and objectives, the current review took the form of a systematic review rather than a scoping, or rapid review. SRs involve surveying a body of evidence in a strategic and systematic manner with the intention of compiling and synthesising a broad foundation of information that will undergo a reviewing process based on a predetermined series of inclusion and exclusion criteria (Gunnell et al., 2020; Ranganathan & Aggarwal, 2020; Siddaway et al., 2019). The benefit of this is that it not only allows for a wide variety of information to be succinctly and comprehensively condensed and made available to other researchers, practitioners, and future policymakers, it also minimises bias and ensures that the research conducted can be easily replicated (Daniels, 2019; Gunnell et al., 2020). Consequently, this research design ensures an increased degree of reproducibility thus allowing the information to be updated and expanded upon in the future (Daniels, 2019; Gunnell et al., 2020) such as was done for the present review.

Scoping reviews, although similar in nature to a systematic review, take on a broader exploration of a particular topic thus not resulting in an in-depth or definitive response to a particular question as is the case in a SR (Munn et al., 2018). Additionally, scoping reviews do not allow for a comprehensive assessment of the quality of the studies consulted thus limiting the methodological rigour of the review conducted (Munn et al., 2018). Similarly, rapid reviews

also result in decreased methodological rigour due to researchers prioritising the pace of the review of findings rather than ensuring that the studies consulted are of a high quality for the purpose of the review (Tricco et al., 2017). Hence, a systematic review was selected as the most appropriate approach for the current study.

3.3. Search Strategy

The first step in ensuring that a systematic review is replicable is for the researcher to ensure that they establish and follow a well-defined literature search strategy that has been planned in detail (Daniels, 2019; Gunnell et al., 2020; Ranganathan & Aggarwal, 2020). By doing so, the researcher is more likely to engage in transparent reporting of the literature, thus ensuring that their final sample is current and relevant to the review (Daniels, 2019; Gunnell et al., 2020; Ranganathan & Aggarwal, 2020).

The search strategy for the current review was two-fold. First, the search process utilised several online scholarly databases which included EBSCO Host, Google Scholar, Jstor, Medline (Ovid), Medline (Web of Science), ProQuest, and PsychINFO. The search terms utilised on all of the above-mentioned databases included: (attachment), AND (biobehavioural), AND (catch up). The search terms were adopted from those utilised by Grube and Liming (2018). The intention of repurposing these search terms was to ensure increased parsimony with Grube and Liming's (2018) review given that the current review sought to serve as an update. Throughout the literature search, the only advanced search filter or search restriction that was utilised was that articles were to be no more than 10 years old. The purpose of applying this date restriction was to ensure that not only was the already existing knowledge being expanded upon, but that it also remained current and utilised the most up-to-date studies. No additional advanced search filters were utilised, thus ensuring that the literature search process remained comprehensive and inclusive of all available literature within each of the consulted scholarly databases.

In addition to the search terms used by Grube and Liming (2018), further search terms were applied with the intention of increasing the sample of collected articles relating to the topic of the review. These terms included: attachment, attachment style, attachment theory, intervention, attachment-based intervention, attachment and biobehavioural catch-up, effectiveness, randomised controlled trial, early childhood adversity, parental sensitivity, and parenting style. Furthermore, it should be noted, that in addition to consulting published journal articles, the literature search also included so-called grey literature consisting of unpublished works such as theses and dissertations. This was done with the intention of ensuring that the

sample of consulted works was as comprehensive as possible in order to achieve the aim and objectives of the current review.

Thereafter, the second step of the search strategy was to establish and make use of inclusion and exclusion criteria to disregard articles that did not pertain to the topic of the review or were redundant in achieving its aim and objectives (Daniels, 2019; Gunnell et al., 2020; Ranganathan & Aggarwal, 2020). This was done through utilising the PICO Framework to establish a well-defined series of inclusion and exclusion criteria as listed in Table 1 below.

Table 1

Selection Criteria According to the PICO Framework

P - Population	Studies including children who are 6 years old and younger (at the time of receiving the intervention) who have been beneficiaries of the ABC, and their caregiver(s).
I - Intervention	Studies employing the ABC intervention. Only studies using RCT methodology as the 'gold standard' of evidence in intervention research will be included. Studies employing other designs will be excluded.
C - Comparison	Studies using at least one control condition for comparison including alternative interventions, waitlists, or treatment-as-usual.
O - Outcome	Any child-related outcomes as well as any parent-/parenting-related outcomes with no restrictions on measurement tools used. Lastly, studies not published in English will be excluded from the final sample of studies to be consulted for this SR.

The purpose of utilising the PICO Framework was to aid in clearly defining the population of each study as well as the comparison group used. Additionally, this allowed for a clearer identification of the resulting outcomes of the studies consulted thus ensuring a clear understanding of which studies to consider for the final sample, and which to remove based on the inclusion and exclusion criteria (Daniels, 2019; Gunnell et al., 2020; Ranganathan & Aggarwal, 2020).

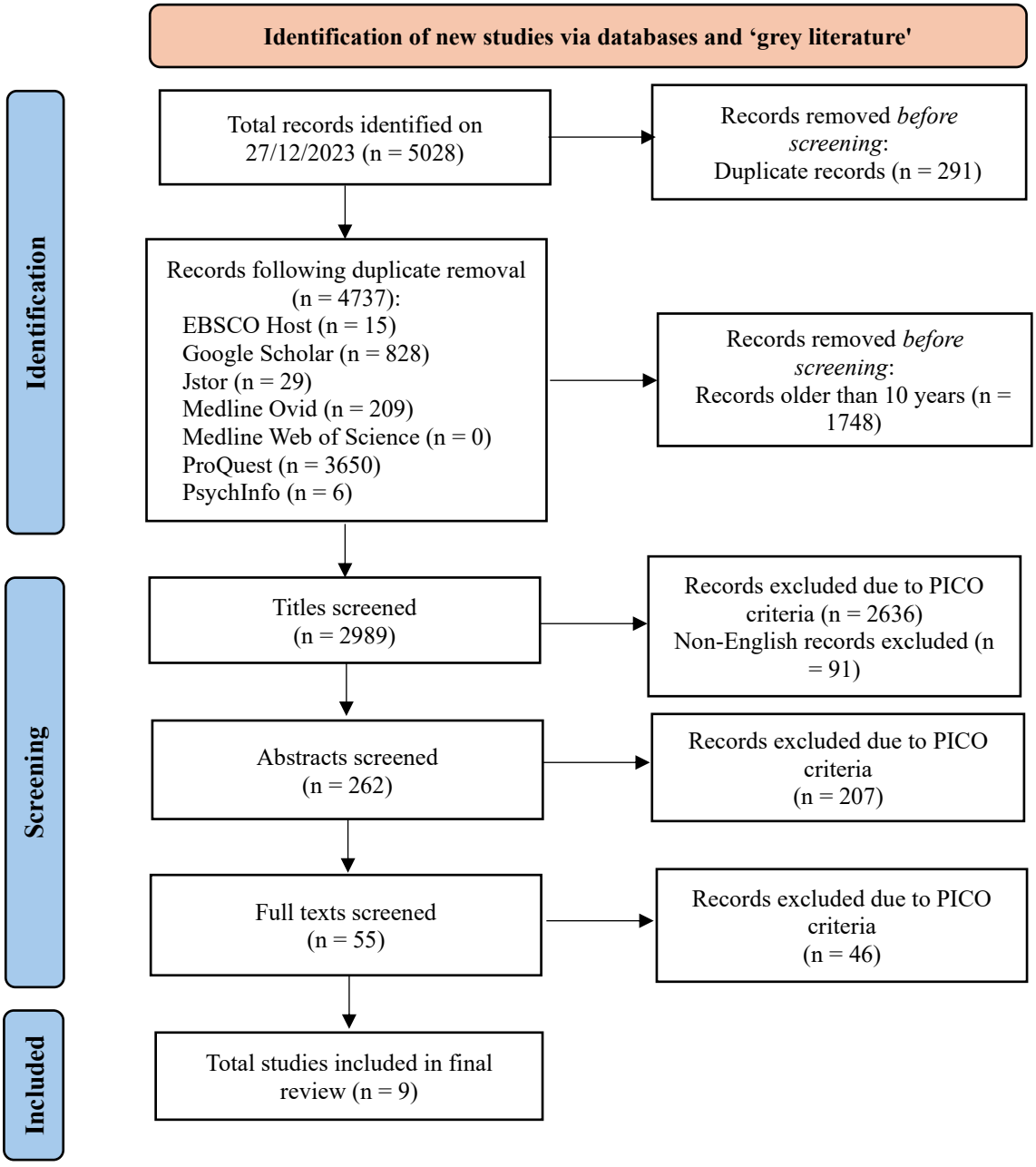
For the current review, each of the search results collected throughout the search strategy underwent an initial three-phase screening process whereby articles were eliminated if found to be redundant for the purposes of the current review. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram is presented in Figure 1 and outlines the literature search and screening process (Page et al., 2021). A total of 5028 records were initially identified via database searches. After 291 duplicate records were

removed and a further 1748 were removed due to being older than 10 years, 2989 records remained and were subject to screening.

At the first phase of the screening process, the title of each article was screened according to the criteria as outlined in Table 1, and subsequently excluded if they were identified as irrelevant and subsequently did not fit the purpose of the review. At this stage, 2727 articles were excluded as they did not meet the inclusion criteria. Thereafter, the remaining 262 articles underwent the second phase of screening whereby the abstracts of each of the articles were assessed according to the eligibility criteria. A total of 207 articles were excluded as their abstracts did not align with the aim and objectives of the current review. The remaining 55 articles underwent the final phase of the screening process whereby the full-text of each of the remaining articles was screened in order to establish which articles were most relevant and eligible for the purpose of the current review. A total of 46 articles were excluded at this stage resulting in a total of nine articles that were subjected to methodological quality assessment.

Figure 1

PRISMA flow diagram conducted for an updated SR including searches of various databases (Page et al., 2021).



3.4. Methodological Quality Evaluation

The evaluation of methodological quality was done with the intention of establishing the degree of bias present within the final sample of studies to include in the review so as to ensure that reported findings were not only accurate but reliable (Gunnell et al., 2020; Munder & Barth, 2018). This was done through the use of the Cochrane Risk of Bias Tool for quantitative studies which aids researchers in assessing the methodological quality and degree of bias present within the studies consulted according to five primary domains of bias, namely:

selection bias, *reporting bias*, *performance bias*, *detection bias*, and *attrition bias* (Munder & Barth, 2018).

As outlined by Munder and Barth (2018), *selection bias* refers to the process of selecting participants in a manner that may impede adequate randomisation and as such, possibly influence the outcomes of the study. Alternatively, *reporting bias* occurs when a researcher reports on only selected study outcomes or results, and by doing so, suppresses information that may be integral to the comprehensive understanding of the study findings. *Performance bias* may also be present during the study or intervention implementation process when study participants become aware of study conditions thus skewing their performance within the study or intervention implementation. Similarly, the outcomes of a study can be influenced or determined by predictable and consistent differences that exist between groups of participants assigned to either the experimental or control groups thus resulting in *detection bias*. Moreover, this form of bias may occur due to the research staff members and their knowledge of the aims, objectives, and hypotheses of the study. In some cases, however, possible inaccurate reporting of intervention findings takes place due to trial dropouts that occur prior to the completion of the intervention thus resulting in the presence of *attrition bias*.

The degree of bias was assessed and identified as being either low, unclear, or high (Gunnell et al., 2020; Munder & Barth, 2018). It should be noted that for the final sample of articles included in the current review, only those studies assessed as having an overall 'low' degree of bias were included. The methodological quality assessments were carried out primarily by the researcher. However, to ensure an increased degree of methodological rigor for the current study, each of the studies included in the final sample at this stage of the review also underwent an independent rating of methodological quality by a second, independent rater. In order to resolve disagreements between raters regarding the degree of bias in a study, discussions were held to reach a collaborative consensus regarding the overall degree of bias to assign to each of the studies and subsequently eliminate articles where studies were found to have either unclear or a high degree of bias. Nine studies were included in the evaluation process of methodological quality and following the consensus agreement between the two independent raters, an overall low risk of bias was identified for each of the studies included. For this reason, all nine studies were included in the final sample of the current review.

3.5. Data Extraction and Synthesis

For the purpose of the current review, a narrative synthesis approach was utilised to extract, aggregate, and compare data from the final sample of articles included in the review (Rodgers

et al., 2009). Data were extracted from the current sample of nine studies according to a set of themes gleaned from Grube and Liming (2018): study design, randomisation and blinding process, control/comparison group, location, sample characteristics, intervention characteristics, and measures and outcomes. This was done with the intention of establishing a primary synthesis as outlined by Rodgers et al. (2009). Using a Microsoft Excel spreadsheet, each study was coded first according to information pertaining to whether the outcomes measured were either child- or parent-/parenting-related. Thereafter, the focus of the data extraction process shifted to the Methods section of the articles for each study whereby information pertaining to the participants, procedures, and measures was extracted. From the Participants subsection of each article, the location of the studies, service sector consulted, sample characteristics such as type, size, race, gender, and age, and lastly the randomisation process utilised was extracted and tabulated accordingly. Furthermore, the Procedures subsection of each article was used to extract and tabulate information pertaining to the control condition utilised, whether fidelity adherence to manualised protocols was ensured, when data was to be collected, and what the intervention provider characteristics were for all included intervention groups. Thereafter, the Measures subsection of each article was consulted with the intention of extracting and tabulating information pertaining to the measurement tool and process, as well as the statistical approach used for each study. Lastly, the final section consulted for each article was that of the Results which was used to extract and tabulate information on the outcomes of each study as they related to either child- or parent-/parenting-related outcomes.

Thereafter, commonalities were established within the findings across several studies regarding the effects of the ABC intervention on both parent-/parenting-related and child-related outcomes (Rodgers et al., 2009). Through utilising an Excel Spreadsheet, the results of each of the studies was extracted and synthesised in a table format in order to elucidate patterns and possible relationships that exist within the findings resulting from the final sample of studies. This allowed for the establishment of an aggregated description of the existence and nature of the effects of the ABC intervention (Popay et al., 2006; Rodgers et al., 2009). Furthermore, extracting the data according to the themes identified by Grube and Liming (2018) further aided in adequately comparing different aspects of the research findings and holistically explaining the data in a manner that is easily accessible to others (Popay et al., 2006; Willig, 2013). Additionally, the narrative synthesis approach allowed for a clearer and more in-depth analysis of the robustness of the studies consulted as well as the review being conducted (Rodgers et al., 2009).

3.6. Methodological Rigour

It is crucial to ensure that methodological rigour is maintained throughout the process of a systematic review to ensure the precision and reliability of the findings with regards to aspects such as the data collection process, the analysis of results, and the reporting thereof (Haddaway et al., 2020). Throughout the completion of the current review, methodological rigour was ensured in three primary ways. First, rigour was maintained through the use of a detailed search strategy and screening process for the data collected as well as transparent reporting of the necessary steps followed to do so. This was done by utilising systematic reporting standards as set out in the PRISMA Flow diagram as seen above. The use of the PRISMA allowed for a higher degree of transparency throughout the process of the review and increased reliability as a result (Haddaway et al., 2020; Munder & Barth, 2018; Page et al., 2021). The PRISMA diagram also allowed for a clear identification of where the sample of articles was obtained and how the inclusion and exclusion criteria, as described within the PICO Framework in Table 1, was applied to this sample at each screening phase to result in the final sample utilised for the purposes of this review (Page et al., 2021). Additionally, the Cochrane Risk of Bias tool allowed for a clearer indication of the degree of bias pertaining to each of the studies consulted for the review and subsequently the methodological quality of each of them (Munder & Barth, 2018).

Secondly, methodological rigour was ensured through the use of an additional reviewer and rater of methodological quality of the available data as it allowed for increased error-checking to take place, which in turn ensured adherence to a higher degree of consistency in the selection of the final sample of studies (Haddaway et al., 2020). Furthermore, the purpose of utilising a second independent rater of methodological quality was to prevent what is referred to as mission creep. This suggests that when only one rater is utilised, there is an increased risk that the rater may divert from the aims and objectives as set out for the study (Haddaway et al., 2020).

Lastly, methodological rigour was maintained by including ‘grey literature’ to the initial sample of collected articles as it mitigates the risk of publication and selection bias while demonstrating a more comprehensive effort to utilise a wholistic evidence base (Haddaway et al., 2020).

Chapter 4: Results

4.1. Introduction

This chapter presents the findings of the review. First, the outcome of the methodological quality assessment will be described. Thereafter, the findings of the narrative synthesis will be presented first by providing a description of the studies in terms of study design, randomisation and blinding process, control/comparison group, location, sample characteristics, and intervention characteristics. Thereafter, the chapter will present the findings related to the child-related outcomes and the parent-/parenting-related outcomes of the ABC intervention.

4.2. Methodological Quality Assessment

The individual ratings that each rater assigned, independently, to each article is presented in Appendix B (Table B1). Following a consensus agreement between the two independent raters, an overall low risk of bias was identified for each of the nine studies eligible for inclusion in the final sample (see Table 2). For this reason, all nine studies were retained and, therefore, included in the final sample for the current review.

Table 2

Overall Rating of Methodological Quality of Final Sample

Author and Year	Degree of Overall Bias
Berlin et al. (2014)	Low
Labella et al. (2020)	Low
Lind et al. (2021)	Low
Raby et al. (2020)	Low
Velez (2015)	Low
Yarger (2018)	Low
Yarger et al. (2016)	Low
Yarger et al. (2020)	Low
Yarger et al. (2022)	Low

4.2.1. Selection Bias

As seen in Appendix B, the two independent raters identified differing ratings for the degree of selection bias for three of the nine studies included in the sample at this time. (Berlin

et al., 2014; Labella et al., 2020; Yarger et al., 2016). The second rater identified an 'unclear' degree of bias for these three studies and highlighted in a consensus discussion that none of these studies explicitly indicated the randomisation method utilised in their studies. For this reason, a collaborative agreement was reached that with regards to selection bias, these three studies presented with an 'unclear' degree of bias.

4.2.2. Reporting Bias

No rating discrepancies were evident between raters for reporting bias and consequently, a 'low' degree of reporting bias was identified for all studies. This was attributed to each study clearly defining their aims, objects, and methodology. Additionally, these studies clearly defined the outcomes they intended to measure and reported on these outcomes in addition to any unexpected outcomes that emerged. All of the studies implemented the intended interventions according to the manualised protocols and all studies were registered with a research and ethics committee from the universities that the researchers were associated with.

4.2.3. Performance Bias

No discrepancies were evident between raters for performance bias and, consequently, all studies were rated as displaying a 'low' degree of performance bias. This was attributed to the fact that intervention providers were unable to be blinded to study conditions. Intervention providers assumed the role of parent coaches who directly implemented specific assessments and tasks relevant and necessary to the implementation of each intervention utilised. Consequently, the trial context required that the intervention providers be aware of the intervention group that they were assigned to. All coders and observers for outcome variables, however, were reported to be blinded or masked to study conditions and the intervention group assigned to participants (Berlin et al., 2014; Labella et al., 2020; Lind et al., 2021; Velez, 2015; Yarger, 2018; Yarger et al., 2016; Yarger et al., 2020; Yarger et al., 2022).

4.2.4. Detection Bias

No discrepancies were evident between raters for detection bias and, consequently, a 'low' rating was identified for all nine studies. This was attributed to the fact that despite being unable to blind interventionists to study conditions, all the coders and observers were blinded thus mitigating this risk of bias. This led to more objective collection and reporting of the data.

4.2.5. Attrition Bias

Of the nine studies evaluated, seven were rated to have a 'low' degree of attrition bias. This was due to the implementation of statistical analysis methods to manage missing data such as the intent-to-treat analysis, full information maximum likelihood, and multiple imputation with fully conditional specification analysis. Two studies were identified to contain an 'unclear' degree of attrition bias as neither of the studies indicated the analysis method utilised to account for the missing data within their studies (Berlin et al., 2014; Velez, 2015). However, through a consensus discussion, the overall rating of attrition bias was 'low'.

4.3. Description of the Studies

Data were extracted from the final sample of studies according to study design, randomisation and blinding, control/comparison condition, location, sample and intervention characteristics, measures, as well as outcomes. These findings are summarised in Tables 3 and 4 and are further elaborated below. Table 3 presents the findings of the review conducted by Grube and Liming (2018), while Table 4 serves to provide the findings of the current review.

4.3.1. Study Design

All studies in the final sample for the current review were randomised controlled trials of the ABC intervention. Of these studies, seven incorporated pre- and post-intervention testing which resulted in the implementation of a longitudinal study design (Labella et al., 202; Lind et al., 2021; Raby et al., 2020; Velez, 2015; Yarger et al., 2016; Yarger et al., 2020; Yarger et al., 2022). Berlin et al. (2014) and Yarger (2018) conducted no pre-intervention assessments other than collecting demographic information. In the study conducted by Berlin et al. (2014), a post-intervention parenting observation assessment was conducted within two weeks of completing the intervention. Velez (2015) followed a similar assessment procedure; however, they conducted their post-intervention assessment one month after the completion of the intervention. Six of the studies conducted a pre-intervention assessment followed by a post-intervention assessment from one to eight months following the completion of the intervention and, thereafter, a second post-intervention follow-up assessment was conducted on an annual basis on the participating children's birthdays at 12-, 24-, 36-, 48-, and 60-months of age (Labella et al., 2020; Lind et al., 2021; Raby et al., 2020; Yarger et al., 2018; Yarger et al., 2020; Yarger et al., 2022). Lastly, in a study conducted by Yarger et al. (2016), a screening interview was conducted prior to implementing the intervention as well as pre-intervention assessments which were conducted prior to the administration of each of the 10 home-based sessions. These

pre-intervention assessments were administered to assess the rate of change in the participating parents' sensitivity and intrusiveness over the course of the intervention implementation (Yarger et al., 2016). Thereafter, a post-intervention follow-up assessment was conducted, however, the researchers did not clearly identify the time that had elapsed between the completion of the intervention, and the post-intervention follow-up (Yarger et al., 2016).

In the current review, two articles made use of the same sample although each reported on different outcomes (Yarger et al., 2016; Velez, 2015). Velez (2015) assessed the effects of the ABC on childhood externalising symptomology, attachment quality, parental attachment states of mind, as well as atypical parenting behaviour. Yarger et al. (2016), on the other hand, assessed the effects of the ABC intervention on parental sensitivity and intrusiveness. Moreover, in a study conducted by Labella et al. (2020), data were used from two RCTs assessing the immediate and longitudinal efficacy of the ABC intervention. This was done with the intention of establishing the long-term implications of being exposed to the ABC intervention. Labella et al. (2020) did not, however, identify the studies from which they drew their participants and instead only highlighted the number of participants that were retained from each of the RCTs for the purpose of their longitudinal analysis.

4.3.2. Randomisation and Blinding Process

Project coordinators of three of the studies included in the current review (Lind et al., 2021; Yarger et al., 2020; Yarger et al., 2022) utilised a randomly generated number sequence whereby participants were assigned to different intervention groups based on whether the randomly generated number was odd or even. In the study conducted by Lind et al. (2021), a non-randomised normative comparison group of non-adoptive children was included after the completion of the randomisation process. Raby et al. (2020) also made use of a random number generator; however, they did not clearly describe the process followed for their randomisation. Of the remaining five studies within the sample, three studies (Berlin et al., 2014; Labella et al., 2020; Yarger et al., 2016) did not clearly define or describe their randomisation processes and only reported that participants were randomly assigned to either intervention group. Yarger et al. (2016) reported that participants were first stratified by race and thereafter randomly assigned to an intervention group. Similarly, Labella et al. (2020) grouped their participants according to caregiver type and, thereafter, randomly assigned them to an intervention group. Lastly, Berlin et al. (2014) reported that participating mothers were receiving inpatient substance abuse treatment at the time of randomisation and enrolled in the study voluntarily on a rolling basis. They were subsequently randomly assigned to an intervention group. The

remaining two studies did not discuss their randomisation processes in detail and only reported that participants were randomly assigned to receive either the experimental intervention or control intervention (Velez, 2015; Yarger, 2018).

In the final sample of studies included in the current review, eight studies implemented randomisation checks to assess whether statistically significant differences existed between participants assigned to comparison, control, or experimental groups (Berlin et al., 2014; Labella et al., 2016; Lind et al., 2021; Raby et al., 2020; Velez, 2015; Yarger, 2018; Yarger et al., 2020; Yarger et al., 2022). All eight of these studies reported that no statistically significant differences were present between participants assigned to either the comparison, control, or experimental groups. One study did not clearly report randomisation checks (Yarger et al., 2016). The researchers outlined that an assessment of demographic variables was conducted; however, they did not highlight whether significant statistical differences existed between groups or not (Yarger et al., 2016).

Of the nine studies included in the final sample of the current review, eight outlined that coders involved in data collection and analysis were blind or masked to study conditions (Berlin et al., 2014; Labella et al., 2020; Lind et al., 2021; Velez, 2015; Yarger, 2018; Yarger et al., 2016; Yarger et al., 2020; Yarger et al., 2022). Seven of the nine studies reportedly utilised multiple coders for data collection and analysis of the same data set, or a double-coding system for a percentage of the video recordings collected (Labella et al., 2020; Lind et al., 2021; Velez, 2015; Yarger, 2018; Yarger et al., 2016; Yarger et al., 2020; Yarger et al., 2022). One study stipulated that instead of utilising blind coders, they made use of two in-the-moment observers who were blind to study conditions (Berlin et al., 2014). None of the studies included in the final sample indicated whether intervention providers were blind to study conditions. However, it should be noted that due to the trial context of each of the studies, intervention providers were unable to be blind to study conditions due to the manualised protocol of activities. Lastly, only one study from the final sample specifically highlighted that both participants and research staff were blind to intervention group assignment (Yarger et al., 2022).

4.3.3. Control/Comparison Group

All studies included in the final sample made use of the ABC intervention as the experimental condition, and either an alternative intervention, wait-list, or treatment-as-usual approach as the control condition. Eight of the nine studies consulted in the current review utilised the Developmental Education for Families (DEF) program as the control intervention which is a manualised 10-session, home-based intervention also delivered by parent coaches,

that was adapted from a pre-existing home-based intervention that was found to enhance the cognitive and language abilities of participating children (Labella et al., 2020; Lind et al., 2021; Raby et al., 2020; Velez, 2015; Yarger, 2018; Yarger et al., 2016; Yarger et al., 2020; Yarger et al., 2022). Notably, however, the DEF intentionally does not address issues related to attachment and sensitivity, distinguishing it from the focus of the ABC. In addition to utilising the DEF program for the control group, Lind et al. (2021) also made use of an additional, comparison group consisting of low-risk biological children. Lind et al. (2021) stipulated that no treatment or intervention was received by the third group and their purpose within the study was to function as a normative comparison group.

Of the nine studies included in the final sample, one study conducted by Berlin et al. (2014) utilised a treatment-as-usual approach for the control group which consisted of regular group substance-abuse treatment meetings that was supplemented with a 'Book of the Week' program. Berlin et al. (2014) explained that the 'Book of the Week' program consisted of home-based visits over the course of 10 sessions whereby clinicians would conduct a general enquiry regarding the well-being of both the mother and her infant while providing them with developmentally appropriate books for their children.

4.3.4. Location

All nine studies were conducted in the USA. Five studies indicated that the study was conducted within the Mid-Atlantic region of the USA (Lind et al., 2021; Raby et al., 2020; Yarger, 2018; Yarger et al., 2020; Yarger et al., 2022). Two of the studies indicated that the location of the study was that of the state of Delaware in the USA (Velez, 2015; Yarger et al., 2016), while one study highlighted multiple locations, namely the states of Pennsylvania, New Jersey, and Delaware in the USA (Labella et al., 2020). One study did not report the specific location of their study, however, highlighted that the country in which the study was conducted was that of the USA (Berlin et al., 2014) and none of the studies reported on the nature of the specific study setting.

4.3.5. Sample Characteristics

In the current review, eight of the nine studies recruited their sample of participants from various child welfare services such as Child Protective Services (CPS), adoption centres, family services diversion programmes, and parent support groups (Labella et al., 2020; Lind et al., 2021; Raby et al., 2020; Velez, 2015; Yarger et al., 2016; Yarger, 2018; Yarger et al., 2020; Yarger et al., 2022). Of these studies, three utilised a sample of children and their biological

parents who had been referred to child welfare agencies as a result of unsubstantiated, or substantiated reports of maltreatment that did not necessitate the removal of the child from their birth families (Velez, 2015; Yarger et al., 2016; Yarger, 2018). Similarly, one study (Berlin et al., 2014) utilised a sample of mothers and their biological children. However, these mothers were receiving inpatient substance-abuse treatment and were recruited from two collaborating substance-abuse treatment facilities. Four of the studies utilised a sample of internationally adoptive families living in the USA (Lind et al., 2021; Raby et al., 2020; Yarger et al., 2020; Yarger et al., 2022) and one of these four studies included a comparison group of low-risk biological caregiver-child dyads (Lind et al., 2021). Lastly, one study conducted by Labella et al. (2020), utilised a mixed sample of participants consisting of both foster care children, and children living with their biological parents.

Of the studies included in the current review, the ages of the participating children ranged from the youngest mean age of 6.4 months (Berlin et al., 2014) to the oldest mean age of 65.96 months (Yarger et al., 2022). Some of the studies included in the current review made use of longitudinal follow-up assessments which accounts for the wide age range of the participating children (Lind et al., 2021; Raby et al., 2020; Yarger et al., 2021; Yarger et al., 2022).

With regards to the race and ethnicity of participating children, three studies utilised a sample of children who were predominantly African-American while the remaining children were either White, Hispanic, or Biracial (Labella et al., 2020; Yarger, 2018; Yarger et al., 2016). Four studies utilised a sample of internationally adoptive families (Raby et al., 2020; Lind et al., 2021; Yarger et al., 2020; Yarger et al., 2022). Two of these studies involved children who were predominantly Asian (Lind et al., 2021; Raby et al., 2020), one study each involved children who were predominantly African (Yarger et al., 2020), and Eastern European (Yarger et al., 2022). The remaining two studies in the current review did not report the racial and/or ethnic composition of the children in their samples and only reported the race/ethnicity of participating caregivers (Berlin et al., 2014; Velez, 2015).

As stated previously, inasmuch as the ABC intervention seeks to bring about changes in the behavioural and emotional regulation of children who may be at risk for disorganised attachments, the intervention is, in itself, a parenting intervention. Hence, studies often reported on both child as well as parent demographic information, including the age, race, marital status, education level, and household income of participating caregivers. In the final sample of studies consulted for the current review, six studies indicated the age of participating caregivers at the time of the intervention (Berlin et al., 2014; Lind et al., 2021; Velez, 2015; Yarger, 2018; Yarger

et al., 2016; Yarger et al., 2020). The mean ages of participating caregivers ranged from 24.7 years of age (Velez, 2015; Yarger et al., 2016) to 40.1 years of age (Lind et al., 2021). Of the nine studies included in the final sample, six studies also included the marital status of participating caregivers (Labella et al., 2020; Lind et al., 2021; Raby et al., 2020; Yarger, 2018; Yarger et al., 2020; Yarger et al., 2022). It was found that of the samples of participating caregivers utilised for each of these studies, a majority of caregivers were married at the time of the implementation of the intervention.

With regards to the race of participating caregivers, four studies utilised a sample of caregivers who were predominantly White, while the sample also included caregivers who were African-American, Hispanic, or Biracial (Berlin et al., 2014; Raby et al., 2020; Lind et al., 2021; Yarger et al., 2020). Two studies included a sample of caregivers who were predominantly African-American, while the remaining caregivers of the sample were White, Hispanic, or Biracial (Labella et al., 2020; Yarger et al., 2018). One study (Velez, 2015) utilised a sample of caregivers assigned to the ABC intervention who were predominantly White, while caregivers assigned to the DEF program were predominantly African-American. Lastly, two studies did not report the racial composition of caregivers in their samples (Yarger et al., 2016; Yarger et al., 2022).

Eight of the nine studies reported on parent education. Of these eight studies, two studies identified that a majority of participating caregivers had not entered or completed high school (Labella et al., 2020; Yarger et al., 2018) while two studies identified that a majority of participating caregivers had completed at least high school (Berlin et al., 2014; Yarger et al., 2016). One study identified that a majority of participating caregivers had attended some college but had not attained a bachelor's degree (Lind et al., 2021). Three of the nine studies included in the final sample identified that a majority of participating caregivers had attained either an undergraduate bachelor's degree, or a post-baccalaureate degree from some form of post-graduate college or university education (Raby et al., 2020; Yarger et al., 2020; Yarger et al., 2022). One study conducted by Velez (2015), did not report on the education level of participating caregivers.

Lastly, with regards to the annual household income of participating caregivers, four studies identified that a majority of them earned more than $100 000 annually (Lind et al., 2021; Raby et al., 2020; Yarger et al., 2020; Yarger et al., 2022) while two studies identified that a majority of participants earned less than $10 000 annually (Labella et al., 2020; Yarger et al., 2018). Two studies identified that the annual household income of participating

caregivers ranged from $11 015 to $13 688 (Velez, 2015; Yarger et al., 2016). One study (Berlin et al., 2014), did not report on the household income of participating caregivers.

4.3.6. Intervention Characteristics

In the current review, eight of the nine studies implemented the ABC intervention within the home environment of the child whether they lived with their biological parents or with foster caregivers (Labella et al., 2020; Lind et al., 2021; Raby et al., 2020; Velez, 2015; Yarger, 2018; Yarger et al., 2016; Yarger et al., 2020; Yarger et al., 2022). Of these eight studies, four assessed foster caregivers and their children (Lind et al., 2021; Raby et al., 2020; Yarger et al., 2020; Yarger et al., 2022) and three assessed children and their biological parents (Velez, 2015; Yarger, 2018; Yarger et al., 2016). Lastly, one of these eight studies assessed a combination of both children and their biological parents, and children and their foster caregivers (Labella et al., 2020). Only one of the nine studies (Berlin et al., 2014) made use of an alternative intervention setting. In this study, an inpatient substance-abuse treatment setting was utilised as biological mothers of participating children were actively undergoing substance-abuse rehabilitation at the time of the intervention implementation. Berlin et al. (2014) reported that although the setting was an inpatient treatment facility, mothers and their children were living in apartment style environments which closely resembled common households.

Of the nine studies, only four explicitly indicated that they ensured fidelity adherence throughout the process of the implementation of the ABC intervention (Velez, 2015; Yarger, 2018; Yarger et al., 2016; Yarger et al., 2022). These studies highlighted that parent coaches not only adhered rigorously to the manualised protocol of the ABC intervention, but they also underwent weekly supervision wherein video recordings of ABC home visits were reviewed for the purposes of fidelity adherence. None of the remaining five studies explicitly reported ensuring fidelity adherence (Berlin et al., 2014; Labella et al., 2020; Lind et al., 2021; Raby et al., 2020; Yarger et al., 2020). However, two of these five studies indicated that the manualised protocol of the ABC intervention was adhered to, and parent coaches underwent weekly supervision, although they did not mention whether video recordings were reviewed for the purpose of fidelity adherence or not (Lind et al., 2021; Yarger et al., 2020). Labella et al. (2020) did not report on adhering to the manualised protocol for the ABC intervention but did indicate that parent coaches underwent weekly supervision. Raby et al. (2020) did not report on supervision of parent coaches but indicated that adherence to the manualised protocol of the

ABC intervention was adhered to. Berlin et al. (2014) reported on neither adherence to the manualised protocol of the ABC intervention nor supervision of parent coaches.

4.4. Description of the Outcomes and Measures

The outcomes of each of the studies included in the current review can be found in Table 4, along with the measurement tools utilised and the procedure followed. What follows is a description of these outcomes, including the following child-related outcomes: diurnal cortisol, infant attachment quality, child anger dysregulation and adaptive regulation, child social-emotional competence; and the following parent-/parenting-related outcomes: parental sensitivity and intrusiveness, as well as atypical parenting behaviour.

4.4.1. Child-Related Outcomes

4.4.1.1. Diurnal cortisol. One of the nine studies utilised saliva sampling as the primary measurement tool to assess the effects of the ABC intervention on diurnal cortisol production (Raby et al., 2020). Participating caregivers were educated on how to correctly collect and store saliva samples for later analysis utilising a high sensitivity salivary cortisol enzyme immunoassay testing kit (Raby et al., 2020). Saliva samples were collected twice a day for a period of three consecutive days and caregivers were required to record the time at which all samples were collected as well as the time their child woke up and went to bed. Furthermore, parents were required to report on any medications consumed by participating children on the days that saliva sampling was conducted (Raby et al., 2020).

Raby et al's (2020) findings suggest that children exposed to the ABC intervention display more significant decreases to their cortisol levels from the time that they wake up in the mornings to the time they go to bed in the evenings as compared to children exposed to the DEF program (Raby et al., 2020). This indicates that children in the ABC condition showed a more normative pattern of diurnal cortisol production compared to those in the DEF condition. It should be noted, however, that Raby et al. (2020) identified that children exposed to the ABC intervention displayed marginally greater levels of cortisol upon waking up than children exposed to the DEF program.

4.4.1.2. Infant attachment quality. Two of the nine studies included in the current review reported on measurement outcomes related to infant attachment. Both studies utilised the SSP as their primary measurement of this outcome (Velez, 2015; Yarger, 2018).

In the study conducted by Velez (2015), infant attachment was categorised according to whether their attachment was insecure-resistant, insecure-avoidant, or secure. Thereafter, an

additional categorisation of attachment disorganisation was provided for each child based on their display of behaviours consistent with fear, confusion, or disorganisation (Velez, 2015). The findings of the study suggested that of the 12 children assigned to the ABC intervention, five were categorised as securely attached. Additionally, of the 11 children assigned to the DEF program, six were categorised as securely attached. Consequently, these findings indicated that no significant differences were present between children exposed to the ABC intervention and those exposed to the DEF program with regards to intervention effects on attachment security (Velez, 2015). Velez (2015) did acknowledge, however, that one significant limitation of the study was their small sample size, which limited statistical power and, hence, the ability to detect an intervention effect if one was present.

In the study by Yarger (2018), the same SSP implementation procedure as described by Velez (2015) as well as the same classification of infant attachment was used. Coding for the SSP was done by two independent coders blind to study conditions. Video recordings were coded once, and 32% of the videos were double coded by the second coder with a total agreement of 89% on both the initial attachment classification and, thereafter, another 89% on the secondary classification of a disorganised attachment (Yarger, 2018). Of the total sample of participating children, 32.7% of ABC-exposed children, and 45% of DEF-exposed children, were categorised as having a disorganised attachment. However, this difference did not reach statistical significance.

4.4.1.3. Child anger dysregulation and adaptive regulation. Of the nine studies included in the final sample, one aimed to measure child anger dysregulation and their ability to employ adaptive regulation (Labella et al., 2020).

To assess these outcomes, Labella et al. (2020) utilised the Tool Task to establish the effects of the ABC intervention on the ability of participating children to regulate their own emotions. Labella et al. (2020) further highlighted that coding of video recordings was conducted by two independent coders with 15% of the videos double coded by a second coder. Additionally, inter-rater reliability was assessed through the use of intraclass correlation coefficients which reflected good to excellent inter-rater reliability across the different scales (Labella et al., 2020). Furthermore, as stipulated by Labella et al. (2020), their study aimed to evaluate whether caregiver type, either foster or biological, served as a moderating factor of intervention effectiveness on children's anger regulation. Findings suggested that when children lived with their biological parents, they displayed lower anger dysregulation when exposed to the ABC intervention as compared to the DEF program (Labella et al., 2020). When living in foster care, however, no significant differences were observed when comparing the

effects of the ABC intervention to the DEF program (Labella et al., 2020). This implies that the effects of the ABC intervention are moderated by the type of caregiving received by the child, as well as the environment in which the caregiving is received (Labella et al., 2020). Furthermore, Labella et al. (2020) found a positive association between adaptive regulation and caregiver type as well as child age. There was no reported association between adaptive regulation and the intervention administered or between adaptive regulation and the interaction between caregiver type and the intervention (Labella et al., 2020). These findings suggest that when considering children living in foster care, they display lower anger dysregulation despite the intervention that they are exposed to. Labella et al. (2020) explained that this may be due to the fact that this population of children are more likely to display blunted emotional expression and have adopted conditional adaptation to environments that they view as frightening or unstable.

4.4.1.4. Child social-emotional competence. Two of the of the nine studies (Lind et al., 2021; Yarger et al., 2022) included in the final sample assessed child social-emotional competence as an outcome.

In a study conducted by Lind et al. (2021), two measures were utilised to assess the degree of child social-emotional competence. In the first measure, Lind et al. (2021) utilised the Brief Infant Toddler Social Emotional Assessment (BITSEA) which takes the form of a self-report questionnaire completed by a child's caregiver regarding their perceptions of their child's problematic behaviour and degree of social-emotional competence. This assessment tool was administered at pre-intervention, post-intervention, and at follow-up when children reached the ages of 12-, 24-, and 36-months of age. Lind et al. (2021) reported that two scores are produced by the BITSEA—social-emotional competence and behaviour problems. However, for the purposes of their study, they only included the social-emotional competence scale. Lind et al. (2018) explain that the scale consists of a total of 11 items pertaining to the self-esteem, play engaged in, and social interactions of the child. Each item is then scored from 0 to 2, with higher scores indicative of a child displaying a higher degree of social-emotional competence (Lind et al., 2021). The findings of the study suggested that prior to the implementation of the interventions, the normative comparison group of children living with their biological parents scored higher than both the ABC and DEF groups of internationally adoptive children with regards to their parent-reported social-emotional competence (Lind et al., 2021). Following the administration of the experimental and control interventions, however, children exposed to the ABC intervention were found to have scored higher than children exposed to the DEF program with regards to the parent-reported social-emotional

competence (Lind et al., 2021). No significant differences were found when comparing the ABC group of children with the normative comparison group at post-intervention thus suggesting that the ABC intervention promotes a healthier trajectory of social-emotional development among at-risk children (Lind et al., 2021).

Furthermore, Lind et al. (2021), utilised the Disruptive Behaviour Diagnostic Observation Schedule (DB-DOS) as a second follow-up assessment when children reached the ages of 48 and 60 months to further assess, longitudinally, the level of social-emotional competence of participating children as observed by their behaviour. According to Lind et al. (2021), the DB-DOS is an assessment procedure during which children are exposed to three different contexts which require them to complete various tasks that are frustrating, with varying degrees of assistance from others. In the first context, the child's caregiver is present, and they are required to engage in activities with their child (Lind et al., 2021). In the second context, the caregivers are replaced by an examiner who offers the child support and assistance when completing different tasks (Lind et al., 2021). In the final context, another examiner is present, however, they offer little to no assistance and place themselves in the corner of the room; the child is, therefore, expected to independently complete various tasks (Lind et al., 2021). Thereafter, each context is coded and scored according to a list of 24 items pertaining to positive assertions, displaying positive affect, and social reciprocity, that each receive a score from 0 to 3 (Yarger, 2018). A total of 20% of the coded videos underwent double coding, and Lind et al. (2021) reported an 80% exact item level agreement between the two coders. The results of the study were separated according to the three contexts of the DB-DOS assessment. The findings across all three contexts demonstrated that the participants of the ABC intervention displayed higher social-emotional competence when compared to the participants of the DEF program (Lind et al., 2021). When compared to the sample of children in the normative comparison group, however, the ABC group displayed no statistically significant difference with regards to their social-emotional competence (Lind et al., 2021). These findings coincide with the statement made by Lind et al. (2021) that when children are exposed to the ABC intervention, they are more likely to experience a healthier and more normal trajectory of development.

In a study conducted by Yarger et al. (2022), the BITSEA was also utilised to assess the level of children's social-emotional competence. Unlike Lind et al. (2021), this study made use of the Total Problem score consisting of 31 items, thus reflecting both the behavioural and emotional problems of participating children. This was done as both a pre-intervention and post-intervention assessment as well as at follow-up assessments when children reached the

ages of 24, 30, and 36 months (Yarger et al., 2022). The findings of the BITSEA at the pre-intervention assessment suggested that there were no significant differences in parent-reported behavioural and emotional problems when comparing the ABC intervention group and the DEF program group (Yarger et al., 2022). At the initial post-intervention BITSEA assessment, however, caregivers reported significantly less behavioural and emotional problems for children exposed to the ABC intervention than children exposed to the DEF program (Yarger et al., 2022). The significant effects of the ABC intervention on minimising the display of behavioural problems were found to persist from 13 to 18.99 months following the completion of the intervention (Yarger et al., 2022). However, it was found that these intervention effects were no longer significant 19 to 28 months post-intervention (Yarger et al., 2022).

Thereafter, Yarger et al. (2022) also utilised the DB-DOS as an additional post-intervention assessment when children had subsequently reached the ages of 48 and 60 months. They, however, utilised the Behavioural Regulation Problems scale for the purposes of their study which assesses participating children's degree of oppositionality, compliance, and aggression (Yarger et al., 2022). During the assessment sessions that took place, all three assessment contexts were video recorded and subsequently coded. Double coding was thereafter conducted on 18 to 20% of the videos and Yarger et al. (2022) reported that inter-rater reliability was good. At the 48-month-old follow-up, Yarger et al. (2022), found that within the first context whereby the participating child's caregiver was present, children exposed to the ABC intervention displayed less difficulties with regulating their emotions and behaviour than children exposed to the DEF program. In the second and third contexts, no significant differences were observed between children exposed to the ABC intervention and those exposed to the DEF program (Yarger et al., 2022). Yarger et al. (2022) further highlighted that at the 60-month-old follow-up, no significant differences were present between the ABC and DEF groups for either of the three DB-DOS contexts.

4.4.2. Parent-/Parenting-Related Outcomes

4.4.2.1. Parental sensitivity, intrusiveness, and positive regard. In addition to the child-related outcomes, the current review also considered the parent-/parenting-related outcomes of the ABC intervention. Of the nine studies included in the final sample of studies, four examined these outcomes in relation to parental sensitivity (Berlin, 2014; Velez, 2015; Yarger et al., 2016; Yarger et al., 2020), and two did so in relation to intrusiveness and positive regard (Yarger et al., 2016; Yarger et al., 2020).

In the study conducted by Yarger et al. (2016), mothers of participating children were required to engage in an unstructured play activity with their child for a period of seven minutes. This activity was conducted at pre-intervention, post-intervention, and prior to each intervention session (Yarger et al., 2016). Mothers and their children were provided with a standardised set of toys and the only instruction given was for mothers to play with their children for the allotted time period. Yarger et al. (2016) highlighted that mothers were not instructed on the degree of proximity to maintain with regards to their children, and no instruction was provided regarding the toys to utilise within each play session. All play activities were video recorded and thereafter underwent a coding process whereby adapted versions of the Observational Record of the Caregiver Environment (ORCE) scale were utilised. The findings of the study suggested that at the pre-intervention assessment stage, no statistically significant differences were observed between the ABC and DEF groups with regards to sensitivity and intrusiveness (Yarger et al., 2016). At the post-intervention assessment stage, however, mothers who were exposed to the ABC intervention demonstrated significantly more sensitivity and less intrusive parenting behaviour as compared to mothers exposed to the DEF program (Yarger et al., 2016). Through a piecewise analysis, it was additionally found that when mothers were exposed to the ABC intervention, they displayed a steeper rate of change over time for both sensitivity and intrusiveness (Yarger et al., 2016).

Similar to the study conducted by Yarger et al. (2016), Velez (2015) also made use of an unstructured seven-minute play activity to assess the effects of the ABC intervention on the sensitivity displayed by participating caregivers. This was done at pre- and post-intervention as well as prior to each intervention session (Velez, 2015). The procedure followed that of Yarger et al. (2016). Each play session was video recorded and subsequently coded through the use of an adapted ORCE scale (Velez, 2015). The findings suggested that caregivers who were exposed to the ABC intervention demonstrated a significant increase in the sensitive behaviours they employed when compared to caregivers exposed to the DEF program (Velez, 2015). No additional information was provided regarding pre-intervention comparisons of the coded data.

Yarger et al. (2020) also utilised various play activities that were coded according to an adapted version of the ORCE scale to assess quality of parenting behaviours. Assessments were conducted at pre- and post-intervention and also on an annual basis until the participating children had reached the age of 60 months (Yarger et al., 2020). Unlike the play activities used by Velez (2015) and Yarger et al. (2016), Yarger et al. (2020) highlighted that different play activities of variable durations were utilised based on the child's age at the time of the follow-up assessment. They explained that for children younger than the age of 18 months, play

activities were nine-minutes long. Additionally, children were placed in a highchair, and the participating dyad was provided with three different toys. For the purposes of this play activity, parents were initially instructed to engage with their child at a distance of three feet without touching any toys and, thereafter, were instructed to play with their children at any distance of their choosing (Yarger et al., 2020). For children between the ages of 18 and 35 months, play activities were between five and seven minutes long and participating dyads were provided with a set of blocks to play with (Yarger et al., 2020). For children between the ages of 39 and 59 months, play activities were seven minutes long and participating dyads were provided with Play-Doh and related tools to play with (Yarger et al., 2020). Lastly, for children aged 60 months and older, the length of play activities was not stipulated. However, participating dyads were given the opportunity to choose either the Play-Doh and related tools, or an art kit to play with (Yarger et al., 2020). The findings of the study suggest that at the pre-intervention assessment, no significant differences were present between the two intervention groups with regards to sensitivity, intrusiveness, and positive regard (Yarger et al., 2020). At the post-intervention assessments, however, caregivers exposed to the ABC intervention were found to demonstrate significantly higher sensitivity than caregivers exposed to the DEF program (Yarger et al., 2020). Additionally, caregivers from the ABC group showed a greater rate of change in their level of sensitivity compared to the DEF control group (Yarger et al., 2020). Furthermore, these findings were identified to persist as far as the 25- to 30-month postintervention follow-up assessments (Yarger et al., 2020). With regards to the degree of intrusiveness of participating parents, the ABC group were found to display a lower degree of intrusive behaviour as compared to the DEF group (Yarger et al., 2020). Additionally, these findings were identified to persist as far as the 31- to 36-month post-intervention assessments (Yarger et al., 2020). Lastly, with regards to the degree of positive regard displayed by participating caregivers, findings suggested that, at post-intervention, caregivers exposed to the ABC intervention demonstrated significantly higher positive regard for their children than caregivers exposed to the DEF program (Yarger et al., 2020). Additionally, caregivers of the ABC group possessed a greater rate of change in positive regard toward their children when compared to the DEF group (Yarger et al., 2020). Moreover, these findings were identified to persist as far as the 19- to 24-month postintervention assessments (Yarger et al., 2020).

Lastly, in a study conducted by Berlin et al. (2014), participating mothers underwent a post-intervention observation for a period of 30- to 40-minutes within two weeks of completing the intervention assigned to them. This was done with the intention of assessing the degree of maternal sensitivity employed by participating mothers through the use of the short version of

the Maternal Behaviour Q-sort (MBQS) applied to observations of free play between mothers and their children. Independent observers, following the completion of the observation period, sorted a total of 25 cards, each of one of which details a behaviour associated with maternal sensitivity, to offer a rating of maternal sensitivity (Berlin et al., 2014). Of the observations, 25% were rated by a second independent rater with a resulting inter-rater reliability that was reported as good (Berlin et al., 2014). The findings suggested that mothers who were exposed to the ABC intervention displayed a higher degree of sensitive behaviour with regards to their interactions with their children as compared to the control group (Berlin et al., 2014).

4.4.2.2. Atypical parenting behaviour. One study conducted by Yarger (2018) aimed to utilise the ABC intervention to investigate the associations between child dysregulation and attachment disorganisation, and parental unresolved attachment and anomalous parenting behaviour.

To assess the effects of the ABC intervention on atypical parenting behaviour, Yarger (2018), utilised the Atypical Maternal Behaviour Instrument for Assessment and Classification (AMBIANCE). As described by Yarger (2018), this tool assesses parenting behaviour according to five domains, namely: affective communication errors, role/boundary confusion, fearful/disoriented behaviours, intrusiveness/negativity, and withdrawal. Parents are assigned a score from 0 to 7 for each domain and thereafter classified as either disrupted or not based on their score (Yarger, 2018). To establish the scores and classifications pertaining to participating caregivers, coding was done using video recordings of the SSP. Of the videos recorded, 27.5% were double coded and 86.7% intercoder agreement was reached regarding the classification of caregivers being either disrupted or not (Yarger, 2018). Of the caregivers exposed to the ABC intervention, 50% were classified as being disrupted, while 61% of caregivers exposed to the DEF program were classified as disrupted. These findings were, however, not found to be statistically significant. Furthermore, no statistically significant intervention effects were identified with regards to affective communication, role/boundary confusion, disorientation, and intrusiveness/negativity when comparing the ABC intervention and the DEF program (Yarger, 2018). The only statistically significant effect found was for parental withdrawal, suggesting that caregivers who were exposed to the ABC intervention displayed lower levels of withdrawal from their children as compared to caregivers exposed to the DEF program (Yarger, 2018). It should be noted, though, that no pre-intervention assessment of atypical parenting behaviour was conducted and thus, there was no baseline measure to establish whether the ABC intervention resulted in significant changes to atypical parenting behaviour over time.

Table 3

Final Sample of Studies Included in the systematic review by Grube and Liming (2018)

Author(s) & Year	Location	Service Sector	Fidelity Adherence	Control Condition	Randomisation and Blinding Process	Intervention Provider Characteristics	When Was Data Collected	Sample Type
Dozier et al., (2006)	Two Mid-Atlantic states in USA	Child welfare agencies	Yes	Developmental Education for Families (DEF) Comparison group of typically developing children	Participants were blind to random assignment Researchers entering and analysing data were blind to group assignment	Professionally licensed social workers or psychologist with 5 years of experience	1 Month following intervention completion	Child welfare involved children
Dozier et al., (2008) *Follow up to Dozier et al. (2006)*	Delaware, USA	Child welfare agencies	Yes	Developmental Education for Families (DEF) Comparison Group of Typically Developing Children	Participants were blind to random assignment Researchers entering and analysing data were blind to group assignment	Professionally licensed social workers or psychologist with 5 years of experience	Not clearly identified	Child welfare involved children
Dozier et al. (2009) *Follow up to Dozier et al. (2006)*	Two Mid-Atlantic states in USA	Child welfare agencies	No description	Developmental Education for Families (DEF)	Participants were blind to random assignment Researchers entering and analysing data were blind to group assignment	Professionally licensed social workers or psychologist with 5 years of experience	1 Month following intervention completion	Child welfare involved children

Author(s) & Year	Location	Service Sector	Fidelity Adherence	Control Condition	Randomisation and Blinding Process	Intervention Provider Characteristics	When Was Data Collected	Sample Type
Lewis-Morrarty et al. (2012) *Follow up to Dozier et al. (2006)*	Not indicated	Child welfare agencies	No description	Foster care control group Non-foster care control group	Not discussed	Not discussed	Not clear	Children involved with child welfare
Bernard et al. (2017) *Follow up to Dozier et al. (2006)*	Not indicated	Child welfare agencies	No description	Developmental Education for Families (DEF)	Project coordinator utilised randomly generated number sequence whereby intervention groups assigned based on whether numbers were even or odd	Not discussed	2 Years postintervention	Child welfare involved children
Sprang, G. (2009)	Not indicated	Mental health/clinical treatment facilities Child welfare agencies	Not adequately described	Treatment as usual plus parent support group	Research staff performed random assignment based on a fixed randomization process (Every 4th case was designated to a wait-list control.)	1 Child psychiatrist 1 Psychiatric nurse 2 Licensed clinical social workers	Pre-intervention and postintervention	Foster parents Children diagnosed with attachment related disorders
Bernard et al. (2012)	Large mid-Atlantic city in USA	Child welfare agencies	Not discussed	Developmental Education for Families (DEF)	Not discussed	Not discussed	At least 1-month postintervention	Children & families in foster-care diversion

Author(s) & Year	Location	Service Sector	Fidelity Adherence	Control Condition	Randomisation and Blinding Process	Intervention Provider Characteristics	When Was Data Collected	Sample Type
Lind et al. (2014) *Follow up to Bernard et al. (2012)*	Large mid-Atlantic city in USA	Child welfare agencies	Not discussed	Developmental Education for Families (DEF)	Not discussed	Parent coaches possessed either a bachelor's or master's degree No indication of professional type	Not clearly identified 1–27 Months postintervention	Children & families in foster-care diversion
Bernard et al. (2015b) *Follow up to Bernard et al. (2012)*	Not discussed	Child welfare agencies	Yes Briefly mentions fidelity	Developmental Education for Families (DEF)	Not discussed	Not discussed	1 Month postintervention 2.67 Months on average Collection time ranged up to 1 year	Child welfare involved children
Bernard et al. (2015c) *Follow up to Bernard et al. (2012)*	Not discussed	Child welfare agencies	Not discussed	Developmental Education for Families (DEF)	Project coordinator utilised randomly generated number sequence whereby intervention groups assigned based on whether numbers were even or odd	Not discussed	3 Years postintervention	Child welfare involved children

Table 3

Final Sample of Studies Included in the systematic review by Grube and Liming (2018) (Continued)

Author(s) & Year	Sample Size	Race	Gender	Age	Measurement Tool and Process	Statistical Approach	Outcome
Dozier et al. (2006)	60 Children in ABC and DEF 104 Children in comparison group in secondary analysis	Intervention children: 63% African, 32% White, 5% Biracial Typically developing comparison group: 48% African, 50% White	Caregivers: 93% Female, 7% Male Intervention children: 50% Male, 50% Female Typically developing comparison group: 48% Male, 52% Female	Intervention children: 3.6–39.4 months Typically developing comparison group: 20–60 months	Cortisol sampling twice per day for 2 days Parent daily report of problem behaviours for 3 days at post assessment	Analysis of Variance (ANOVA)	DEF children showed higher cortisol values ABC caregivers reported fewer problem behaviours for toddlers than infants (Not the Case for DEF Caregivers) ABC cortisol regulation more similar to comparison group
Dozier et al. (2008) *Follow up to Dozier et al. (2006)*	46 ABC children 47 DEF children 48 typically developing children not in foster care	ABC children: 81% African, 17% White, 2% Hispanic DEF children: 66% African, 29% White, 5% Hispanic Comparison children: 56% White, 35% African, 5% Hispanic	ABC children: 41% Male, 59% Female DEF children: 57% Male, 43% Female Comparison children: 56% Male, 44% Female	ABC children: 20.0 months DEF children: 19.5 months Comparison children: 19.5 months	Strange Situation Procedure (SSP) Cortisol Sampling: 15 minutes before SSP, 15 minutes after, and 30 minutes after Foster parents collected saliva samples prior to leaving their house for the SSP and 2 hours post-SSP	Group differences in SSP: Hierarchical linear modelling	ABC children showed lower initial levels of cortisol upon arriving in the SSP lab Comparison group children showed lower initial levels of cortisol than DEF group Increases in cortisol are not present in any group after SSP

Author(s) & Year	Sample Size	Race	Gender	Age	Measurement Tool and Process	Statistical Approach	Outcome
Dozier et al. (2009) *Follow up to Dozier et al. (2006)*	46 Children	63% African, 26% White, 10% Other	50% Male, 50% Female	3.6–39.4 Months	Attachment diaries: foster parents completed diaries for 3 days	ANOVA	ABC children showed less avoidance than DEF children Scores pertaining to security were not significant.
Lewis-Morrarty et al. (2012) *Follow up to Dozier et al. (2006)*	17 ABC children 20 Foster care control children 24 non-foster care comparison children	Caregivers: 57% White, 39% African, 1% Asian Children: 43% African, 36% White, 21% Other	Caregivers: 100% Female Children: 50% Male, 50% Female	Children: 4 and 6 years old (M = 60.3 months)	Cognitive flexibility: Card Sort Game Theory of Mind: Penny-Hiding Game	Analysis of Covariance (ANCOVA) $\chi 2$ Controls: child receptive language	ABC children and the non-foster-care control children scored significantly better in cognitive flexibility and Theory of Mind Activities ABC supports normative development in children
Bernard et al. (2017) *Follow up to Dozier et al. (2006)*	28 DEF children 24 ABC children 22 of the total sample were still residing with a caregiver who had received intervention	Children: 50% African, 29% White, 21% Other	Children: 44% Male, 56% Female	Children: 34.2 – 46.4 Months	Receptive language: Peabody Picture Vocabulary Test, 3rd ed. (PPVT III) No validity measures given	Control and Intervention Group Differences: $\chi 2$ Tests and *t* Tests PPVT (III): independent samples *t* Test Control for covariates: stepwise regression	ABC Children in 45th percentile and control group in 28th percentile on PPVT standard scores Effect of ABC on receptive language is significant when controlling for covariates.

Author(s) & Year	Sample Size	Race	Gender	Age	Measurement Tool and Process	Statistical Approach	Outcome
Bernard et al. (2012)	120 Children 113 Parents	Children: 73% African, 8% White, 31% Other	Parents: 98% Female, 2% Male Children: 58% Male, 42% Female	Parents: 15.7 – 47 Years Children: 1.7 – 21.4 Months	Strange Situation Procedure (SSP)	Organized versus disorganized attachment: $\chi 2$ Tests	ABC children showed lower rates of disorganized attachment and significantly higher rates of organized attachment
Lind et al. (2014) *Follow up to Bernard et al.(2012)*	112 Biological parents 117 Children	ABC parents: 65% African, 19% White, 16% Other DEF parents: 62% African, 10% White, 28% Other	ABC parents: 4% Male, 96% Female ABC children: 55% Male, 45% Female DEF parents: 2% Male, 98% Female DEF children: 51% Male, 49% Female	ABC parents: M = 28.7 years ABC children: M = 26.7 months DEF parents: M = 27.7 years DEF children: M = 26.2 months	Negative affect: The Tool Task	ANOVA	ABC children showed lower negative affect expression than DEF children ABC children showed lower levels of anger, anger toward parent, and global anger and sadness.
Bernard et al. (2015b) *Follow up to Bernard et al. (2012)*	49 ABC children 52 DEF children	Parents: 65% African, 16% White, 19% Other ABC children: 69% African, 7% White, 24% Other DEF children: 62% African, 10% White, 28% Other	Parents: all female except 2 ABC children: 59% Male, 41% Female DEF children: 54% Male, 46% Female	Parents: 15.1 – 46.6 years Children: 46.5 – 69.6 months	Cortisol sampling twice per day for 3 days	Group differences in cortisol levels: hierarchical linear modelling	Waking cortisol levels differed significantly for ABC children than DEF children Bedtime cortisol levels were not significantly different Children in the DEF Group showed blunted cortisol patterns (not a steep pattern)

Author(s) & Year	Sample Size	Race	Gender	Age	Measurement Tool and Process	Statistical Approach	Outcome
Bernard et al. (2015c) *Follow up to Bernard et al. (2012)*	54 ABC children 61 DEF children	Children: 59% African, 10% White, 31% Other	ABC children: 59% Male, 41% Female DEF children: 56% Male, 44% Female	Children: 5 – 34.2 months	Cortisol sampling twice per day over 2–3 days Control(s): child age	Group differences in cortisol levels: hierarchical linear modelling	Waking levels of cortisol differed significantly between ABC children and DEF children when controlling for time and age ABC Children showed steeper wake-up to bedtime pattern than DEF children

Table 4

Final Sample of Studies Included in the Current systematic review

Author(s) & Year	Location	Service Sector	Fidelity Adherence	Control Condition	Randomisation and Blinding Process	Intervention Provider Characteristics	When Was Data Collected	Sample Type
Yarger et al. (2016) *Same sample group as Velez (2015)*	Delaware; USA	Division of Family Services	Yes	Developmental Education for Families (DEF)	Participants stratified by race and randomly assigned	Interventionists not clearly discussed 11 coders blind to study condition, intervention session, date of collection, and hypothesis	Pre-intervention screening, prior to each intervention session, and post-intervention follow-up	Referrals following unsubstantiated reports of neglect
Labella et al. (2020)	Pennsylvania, New Jersey, and Delaware; USA	Child Protective Services (CPS), and Child Welfare Agencies	Only weekly supervision was discussed	Developmental Education for Families (DEF)	Participants grouped according to caregiver type, and thereafter randomly assigned to ABC or DEF intervention	Parent coaches not clearly discussed Coders were undergraduate and postgraduate students blind to study data	Pre-intervention, and yearly research visits between ages 2 and 4 following intervention completion (Emotion regulation task conducted at 24- and 36-month follow-up).	Foster families, and birth families participating in a Foster Care Diversion Program wherein two different RCTs were conducted regarding the ABC intervention

Author(s) & Year	Location	Service Sector	Fidelity Adherence	Control Condition	Randomisation and Blinding Process	Intervention Provider Characteristics	When Was Data Collected	Sample Type
Raby et al. (2020)	Mid-Atlantic region of USA	Adoption clinics, agencies, and support groups Additionally, advertisements shared on public radio, adoption newsletters, and social media	Only manualised implementation discussed	Developmental Education for Families (DEF)	Random Number Generator utilised for intervention assignment	Parent coaches not clearly discussed Parents collected saliva samples	Diurnal saliva samples were collected pre-intervention, one- to 8-months post-intervention, and annually on the child's birthday until 60 months of age following intervention completion	Internationally adoptive families living in USA
Yarger et al. (2020)	Mid-Atlantic region of USA	Adoption agencies	Only manualised implementation and weekly supervision discussed	Developmental Education for Families (DEF)	Project director utilised randomly generated number sequence whereby intervention groups assigned based on whether numbers were even or odd	Parent coaches described as clinicians and coders were blind to study conditions	Pre-intervention, Initial postintervention visit approximately 4 weeks following intervention completion, and annual follow-ups at time of child's birthday for proceeding 5 years	Internationally adoptive families living in USA

Author(s) & Year	Location	Service Sector	Fidelity Adherence	Control Condition	Randomisation and Blinding Process	Intervention Provider Characteristics	When Was Data Collected	Sample Type
Lind et al. (2021)	Mid-Atlantic region of USA	Internationally adopted sample: adoption agencies and programmes for internationally adopted children at local children's hospitals Low-risk biological sample: university-based childcare centre and local preschools	Only manualised implementation and weekly supervision discussed	Normative comparison group Developmental Education for Families (DEF) group	Project coordinator utilised randomly generated number sequence whereby intervention groups assigned based on whether numbers were even or odd Non-adoptive children were included as a normative comparison group	10 ABC parent coaches: postbaccalaureate, graduate, and postdoctoral coaches 5 DEF parent coaches: postbaccalaureate, graduate, and postdoctoral coaches Coders were blind to study conditions	Pre-intervention play activity, postintervention visit approximately 1 month following intervention completion, and annual follow-ups at 12, 24, 36, 48, and 60 months of age on child's birthday following intervention completion	Internationally adoptive families living in USA and a low-risk biological comparative sample
Yarger et al. (2022)	Mid-Atlantic region of USA	International adoption clinics and parent groups	Yes	Developmental Education for Families (DEF)	Project coordinator utilised randomly generated number sequence whereby intervention groups assigned based on whether numbers were even or odd, and simple randomisation	Parent coaches and coders possessed, at minimum, a bachelor's degree Participants and research staff collecting data were masked to intervention condition	Pre-intervention visit, initial post-intervention follow-up, and annual follow-ups at 12-, 24-, 36-, 48-, and 60-months old on child's birthday after intervention completion	Internationally adoptive families living in USA

Author(s) & Year	Location	Service Sector	Fidelity Adherence	Control Condition	Randomisation and Blinding Process	Intervention Provider Characteristics	When Was Data Collected	Sample Type
Berlin et al. (2014)	Not indicated	Two collaborating substance-abuse treatment facilities	Not indicated	Treatment as usual plus 'Book of the Week' program: 10 brief, home-based appointments (general enquiry of mother and infant well-being and provided with developmentally appropriate book for child)	Mothers voluntarily enrolled on a rolling basis, and thereafter randomly assigned	2 ABC parent coaches 2 clinicians for the 'Book of the Week' program 1 trained observer blinded to program/control group status	Pre-intervention interview, post-intervention parenting observation conducted within 2 weeks of completing the intervention	Mothers receiving residential substance-abuse treatment for at least 2 months with biological infants between 1 and 20 months old
Velez (2015)	Delaware; USA	Delaware Child Welfare Office	Yes	Developmental Education for Families (DEF)	Not discussed	Interventionists not clearly discussed 1 blind coder of maternal sensitivity 1 blind coder of infant attachment quality	Pre-intervention and 1-month post-intervention follow-up	High-risk mother-infant dyads with unsubstantiated accusations of abuse or neglect
Yarger (2018)	Large Mid-Atlantic city in USA	Child Protective Services (CPS)	Yes	Developmental Education for Families (DEF)	Not discussed	Interventionists not clearly discussed 2 coders blind to study conditions were assigned to each stage of data collection	Pre-intervention visit, initial post-intervention follow-up (average of 7 months after intervention completion), and follow-up visits when children reached ages 3- and 4-years old	Families reported to CPS due to substantiated, or unsubstantiated reports of maltreatment

Table 4

Final Sample of Studies Included in the Current systematic review (Continued)

Author(s) & Year	Sample Size	Race	Gender	Age	Measurement Tool and Process	Statistical Approach	Outcome
Yarger et al. (2016) *Same sample group as Velez (2015)*	13 ABC mothers and biological children 11 DEF mothers and biological children	ABC Children: 42,6% African, 38,5% White, 7,7% Biracial, 7,7% Other DEF Children: 63,6% African, 36,4% White	ABC Children: 61,5% Male, 38,5% Female DEF Children: 45,5% Male, 54,5% Female	ABC Caregivers: M = 24,70 years DEF Caregivers: M = 28,82 years ABC Children: M = 13,18 months DEF Children: M = 15,14 months	Mother's responsiveness and ability to 'follow the child's lead': Observational Record of the Caregiving Environment (ORCE) Sensitivity Scale Mother's level of intrusive or overstimulating behaviour: ORCE Intrusiveness Scale	Sensitivity and intrusiveness change: Hierarchal Linear Growth Modelling Separate growth trajectories between sessions: Piecewise Linear Growth Modelling\ Missing data: Full Information Maximum Likelihood	ABC mothers had steeper rates of change in sensitivity and intrusiveness First piece had steeper rates of change in parenting behaviour of the two-piece models
Labella et al. (2020)	120 Birth parent children (49,2% assigned to ABC intervention) 91 Foster care children (46,2% assigned to ABC intervention)	Children of birth parent group: 61,7% African, 8,3% White, 16,7% Multiracial, 13,3% Hispanic Children of foster care group: 65,9% African, 23,1% White, 7,7% Multiracial, 3,3% Hispanic	Children of birth parent group: 46,7% Female Children of foster care group: 48,4% Female	Birth parent children age at intervention completion: M = age 13,7 months Foster care children age at intervention completion: M = age 15,2 months	Child's emotion regulation: Tool Task	Latent factors underlying the nine scales reflecting child emotion expression and regulatory behaviours: Exploratory factor analysis using maximum likelihood estimation oblimin rotation corroborated by parallel analysis using psych package in R ANCOVA	Foster care children showed lower anger dysregulation regardless of intervention group This reflects patterns of dampened emotional expression and conditional adaptation to unpredictable and frightening environments

Author(s) & Year	Sample Size	Race	Gender	Age	Measurement Tool and Process	Statistical Approach	Outcome
Raby et al. (2020)	46 ABC children 39 DEF children	Child race not clearly discussed ABC children region of adoption: 9% Africa, 61% East Asia, 24% Eastern Europe and Central Asia, 7% Other DEF children region of adoption: 15% Africa, 51% East Asia, 23% Eastern Europe and Central Asia, 10% Other	ABC Children: 50% Male, 50% Female DEF Children: 54% Male, 46% Female	ABC children age at postintervention visit: M = 26,9 months DEF child age at postintervention visit: M = 27,4 months	Diurnal cortisol data: Saliva sampling utilising high sensitivity salivary cortisol enzyme immunoassay kit testing	Changes in diurnal cortisol levels: Latent change analyses in MPlus version 8 Missing data: Full Information Maximum Likelihood	ABC children showed steeper declines in waking to bedtime cortisol levels after completing the intervention
Yarger et al. (2020)	59 ABC children 61 DEF children	ABC children: 15,3% White, 10,2% African, 67,8% Asian, 5,1% Biracial, 1,7% Other DEF children: 24,6% White, 18,0% African, 57,4% Asian	ABC children: 49,2% Male, 50,8% Female DEF children: 45,9% Male, 54,1% Female	ABC children age at intervention: 8,0 - 47,2 months DEF children age at intervention: 9,1 - 50,5 months	Parenting quality: video-recorded ‘Block and Play-Doh’ play assessments varying according to age of child Sensitivity, intrusiveness, and positive regard: adapted 5-point Observational Record of the Caregiving Environment (ORCE) scale from coded video-recordings	Demographic characteristics: Chi-square and independent samples *t*-tests Pre-to-Post parenting behaviour change between groups: Piecewise hierarchal linear growth modelling and full maximum likelihood estimations	ABC increased sensitivity and positive regard, while decreasing intrusiveness Parenting changes are sustained long-term and significant differences between ABC and control groups were present up to 2.5 years postintervention

Author(s) & Year	Sample Size	Race	Gender	Age	Measurement Tool and Process	Statistical Approach	Outcome
Lind et al. (2021)	66 International adoption DEF children 65 International adoption ABC children 48 Low-risk biological comparison children (no intervention services received)	DEF children: 22,7% White, 16,7% African, 57,6% Asian, 3,0% Other ABC children: 16,9% White, 6,2% African, 64,6% Asian, 12,3% Other Low-risk biological children: 77,1% White, 6,3% African, 4,7% Asian, 12,5% Other	DEF children: 50,0% Male, 50,0% Female ABC children: 47,7% Male, 52,3% Female Low-risk biological children: 54,2% Male, 45,8% Female	DEF children age at intervention: M = 20,1 months ABC children age at intervention: M = 21,6 months Low-risk biological children age at DB-DOS: M = 57,7 months	Parent-reported child social-emotional competence: Brief Infant-Toddler Social and Emotional Assessment (BITSEA; 12 to 36 months old follow-ups) Child observed social-emotional competence: Disruptive Behaviour Diagnostic Observation Schedule (DB-DOS; 48 to 60 months old follow-ups) Parent sensitivity postintervention: semi structured play activity (coded using ORCE scale)	Randomisation, covariates, attrition, and parent gender: T tests, chi-square tests, and correlations Parent-reported child social-emotional competence, and Observed child social-emotional competence: Repeated measures analyses of covariance (ANCOVAs) Between-group outcome differences: ANCOVAs Parent-sensitivity mediator: Mediation model	ABC children are more likely to have higher levels of parent-reported social-emotional competence at 24- to 36-months old, and higher levels of observed social-emotional competence at 48- to 60-months old than control children, however, were similar to low-risk biological children Parent sensitivity postintervention mediated the positive effect of the ABC
Yarger et al. (2022)	61 ABC children 61 DEF children	Child race not clearly discussed ABC children region of adoption: 23,0% Eastern Europe, 77,0% Other regions DEF children region of adoption: 26,2% Eastern Europe, 73,8% Other regions	ABC children: 47,5% Male, 52,5% Female DEF children: 47,5% Male, 52,5% Female	ABC children age at pre-intervention visit: M = 21,13 months DEF children age at pre-intervention visit: M = 21,94 months	Parent-reported problem behaviour: BITSEA; pre-intervention, initial postintervention, 24-, 30-, and 36-month-old follow-ups Observed behaviour problems: DB-DOS: 48- and 60-month-old follow-ups	Descriptive statistics, bivariate correlations, chi-square tests, and ANOVA Full maximum likelihood estimation BITSEA data: Piecewise linear growth modelling	ABC children showed fewer behaviour problems and regulation difficulties and effects were sustained up to 1.5 years postintervention

Author(s) & Year	Sample Size	Race	Gender	Age	Measurement Tool and Process	Statistical Approach	Outcome
Berlin et al. (2014)	11 ABC mothers 10 'Book of the Week' program mothers	ABC mothers: 82% White, 18% Other Control mothers: 90% White, 10% Other	ABC children: 55% Male, 45% Female Control children: 70% Male, 30% Female	ABC Mothers: M = 33 years ABC children: M = 12,5 months Control mothers: M = 33 years Control children: M = 6,40 months	4 measures completed - Childhood Trauma Questionnaire (CTQ) - Centre for Epidemiologic Studies Depression (CES-D) Scale - Generalised Anxiety Disorder 7-Item (GAD-7) Scale - Maternal Behaviour Q-Short (MBQS)	Descriptive statistics Cohen's *d* One-tailed *t*-tests	Feasibility and efficacy of supplementing inpatient substance-abuse treatment with ABC was promising ABC mothers displayed greater sensitive parenting behaviours
Velez (2015)	13 ABC mother-child dyads 11 DEF mother-child dyads	ABC caregivers: 38,5% African, 53,8% White, 7,7% Hispanic DEF caregivers: 54,5% African, 27,3% White, 18,2% Hispanic	ABC children: 61,5% Male, 38,5% Female DEF children: 45,5% Male, 54,5% Female	ABC caregivers: M = 24,70 years DEF caregivers: M = 28,82 years ABC children: M = 13,18 months DEF children: M = 15,14 months	Maternal sensitivity: 7-minute play assessment pre-intervention, at each intervention session, and at the 1-month post-intervention session (Sensitivity was scored on a 5-point Likert scale) Infant attachment quality: Strange Situation	Pre-to-post changes in maternal sensitivity: ANOVA Attachment security: Chi-square analysis	No significant differences for attachment security or disorganisation between ABC and DEF children ABC parents showed increased sensitivity from pre- to post-intervention assessments

Author(s) & Year	Sample Size	Race	Gender	Age	Measurement Tool and Process	Statistical Approach	Outcome
Yarger (2018)	52 ABC parent-child dyads 57 DEF parent-child dyads	ABC parents: 63,5% African, 28,8% White, 7,7% Biracial ABC children: 63,5% African, 11,5% White, 25,0% Biracial DEF parents: 66,7% African, 29,6% White, 3,7% Biracial DEF children: 63,2% African, 24,6% White, 12,3% Biracial	ABC parents: 3,8% Male, 96,2% Female ABC children: 53,8% Male, 46,2% Female DEF parents: 3,5% Male, 96,5% Female DEF children: 50,9% Male, 49,1% Female	ABC children age at Strange Situation procedure: M = 20,6 months DEF children at Strange Situation procedure: M = 20,9 months	Parental attachment state of mind: Pre-intervention Adult Attachment Interview (AAI) Infant attachment quality: post-intervention laboratory visits for Strange Situation (SS) procedure Atypical parenting behaviour: Atypical Maternal Behaviour Instrument for Assessment and Classification (AMBIANCE) Childhood externalising symptomology: DB-DOS at 3- and 4-year-old follow-ups	Descriptive statistics, bivariate correlations, chi-square tests, and ANOVA Full maximum likelihood estimation in MPlus version 8 Factor structure of DB-DOS: high order confirmatory factor analysis (CFA) Validity of measurement models: Cut-offs of acceptable model fit statistics Effect of the intervention: Structural equation models and mediation models	ABC children less likely to be classified as having disorganised attachment due to decreasing parental withdrawal ABC parents showed significantly less withdrawal at initial follow-up Parental disorientation was associated with child dysregulation when children were 4-years old Anomalous parenting behaviour and child attachment disorganisation not significantly associated with parental unresolved attachment representations

Chapter 5: Discussion

5.1. Introduction

This chapter will provide a summary and synthesis of the effects of the ABC intervention with regards to both the child- and parent-/parenting-related outcomes as discussed in Chapter 4. This will be achieved through providing an overview of the findings through consulting Table 4 above and, thereafter, comparing these findings with those identified in the previous SR conducted by Grube and Liming (2018) by consulting Table 3 above. Subsequently, a general summary will be provided with regards to the quality of the evidence consulted and provided within the review. Additionally, the reliability and validity of the findings related to the outcomes of the ABC intervention will be discussed. Lastly, an overview will be provided with regards to the implications of these findings for theory, policymaking, and clinical practice with young children and their caregivers.

5.2. Study Design

Of the nine studies included in the current review, all nine utilised RCT methodology as the 'gold standard' of evidence as stipulated in the inclusion and exclusion criteria of the PICO Framework outlined above. These RCTs were conducted with the intention of assessing the effects of the ABC intervention according to some study aim and objective. All nine of the studies utilised a longitudinal study design of which seven made use of pre- and post-intervention assessments (Labella et al., 202; Lind et al., 2021; Raby et al., 2020; Velez, 2015; Yarger et al., 2016; Yarger et al., 2020; Yarger et al., 2022).

Similarly, in their review, Grube and Liming (2018) outlined that of their final sample of ten studies, all of the studies made use of RCT methodology as the 'gold standard' of evidence as per their inclusion and exclusion criteria. Six of these studies made use of the same sample of participants, while the remaining four studies took the form of follow-up studies of a study conducted by Dozier et al. (2006). Grube and Liming (2018) reported that many of their studies utilised a pre- and post-testing design, however, they did not clearly indicate how many of the studies included in their final sample did this.

The use of RCT methodology to establish the effects of the ABC intervention is significant as this method of identifying and assessing data has been found to allow researchers to remain objective while building an empirical evidence-base for their research (Cook-Lundgren & Girei, 2024; Finne et al., 2024). This is done through quantifying various

intervention effects thus making it easier for policymakers, practitioners, and future researchers to make a well-informed decision regarding not only the applicability of an intervention, but its efficacy as well (Cook-Lundgren & Girei, 2024; Finne et al., 2024). Through utilising studies that explicitly made use of RCT methodology in addition to a control group for the purpose of comparison, the studies included in the current review, as well as the previous review have alluded to the causal effects of the ABC intervention. This implies, through the use of randomisation and a control group, that all study outcomes as highlighted below were directly caused by the ABC intervention as opposed to simply being correlated to its implementation.

5.3. Randomisation and Blinding Process

Three of the studies included in the final sample specified utilising a randomly generated number sequence for the process of randomly assigning participants (Lind et al., 2021; Yarger et al., 2020; Yarger et al., 2022) while three studies (Berlin et al., 2014; Labella et al., 2020; Yarger et al., 2016) did not clearly define or describe their randomisation processes. One study reported utilising a random number generator, however, the details of this process was not provided (Raby et al., 2020). Lastly, the remaining two studies did not discuss their randomisation processes in detail (Velez, 2015; Yarger, 2018). Randomisation checks regarding statistically significant between-groups differences were conducted by researchers of eight of the nine studies included in the final sample. No statistically significant between-groups differences were found in any of these studies. One study, however, did not clearly discuss whether randomisation checks were completed, and researchers did not indicate whether statistically significant demographic differences were present in their study (Yarger et al., 2016). With regards to coders of collected data utilised for each of the studies, eight of the nine studies included in the final sample for the current review made use of coders who were blinded or masked to study conditions (Berlin et al., 2014; Labella et al., 2020; Lind et al., 2021; Velez, 2015; Yarger, 2018; Yarger et al., 2016; Yarger et al., 2020; Yarger et al., 2022).

In their review, Grube and Liming (2018) highlighted that randomisation, and blinding was varied across studies. They reported that one study (Sprang, 2009) utilised fixed randomisation whereas another study (Bernard et al., 2015a) made use of a randomly generated number sequence to assign participants to either the control or experimental groups. They explained that one study (Dozier et al., 2006) utilised a double-blind randomisation process for their participants as caregiver type varied among participating caregivers. Similar to the studies included in the final sample of the current review, randomisation checks were performed in

nine of the ten studies included in Grube and Liming's (2018) review. Only one study (Lewis-Morrarty et al., 2012) found statistically significant between-group differences whereby the age, race, and ethnicity of participating children varied significantly between groups. One study (Dozier et al., 2008) established differences between the comparison, experimental, and control groups, however, through further analysis, these differences were found to have little to no effect on study findings.

According to Gravetter and Forzano (2018), randomisation is a crucial step in the research process as it ensures that no extraneous variables, or variables that are not taken into consideration during the research process, become confounding variables. Should this happen, these variables may have unexpected and unwanted effects on the overall outcomes of a study thus biasing the findings (Gravetter & Forzano 2018). Additionally, a lack of randomisation may reflect an increased degree of bias and mission creep in a study (Gravetter & Forzano, 2018). All of the studies included in the final sample for the current review reported using random assignment of their participants to either the experimental or control groups. This ensures that bias has been mitigated as far as possible and through the use of randomisation checks, researchers have confirmed that their randomisation processes have had the desired effect. This increases confidence in the causal effects of the ABC because possible extraneous variables were controlled through randomisation which, on the whole, resulted in homogenisation between the intervention and control groups.

Blinding of research participants and staff has a similar effect as the blinding process ensures that all stakeholders within a study are unaware of their assigned group's study conditions thus mitigating further bias from occurring (Gravetter & Forzano, 2018; Polit, 2011). Although intervenors could not be blinded, all of the studies included in the current review made use of a double coding process whereby coding of recorded and observed data was completed by two blinded or masked coders. Many of the studies included in Grube and Liming's (2018) review reportedly also made use of double coding process of their collected data. Furthermore, in studies where double coding was conducted, interrater reliability was found to be good which implies that coding that was done can be regarded as trustworthy and consistent. The results of the studies included in the review can, therefore, be considered to be robust and reliable.

5.4. Control/Comparison Group

For the purpose of the current review, all of the studies included in the final sample utilised the ABC intervention as the experimental intervention in addition to a comparative

control intervention, wait-list group, or treatment-as-usual approach as a control condition. Eight of the nine studies utilised the DEF program as the control intervention, while one study (Berlin et al., 2014) made use of a treatment-as-usual approach within a substance-abuse rehabilitation centre. Berlin et al. (2014) also supplemented their treatment-as-usual approach with a 'Book of the Week' program. Of the nine studies included in the final sample, one (Lind et al., 2021) incorporated a normative comparison group of low-risk biological children in addition to their control and experimental groups following the initial completion of the interventions.

Similarly, in the review conducted by Grube and Liming (2018), eight of the ten studies included in their final sample utilised the DEF program as their control condition, while one study (Sprang, 2009) utilised a treatment-as-usual approach as the control condition. One study (Lewis-Morarty et al., 2012) reportedly made use of two control intervention groups, a foster-care and non-foster-care group, in addition to the experimental group who were exposed to the ABC intervention. Grube and Liming (2018) highlighted that the researchers of this study did not explicitly state what control intervention was administered with their control groups. Two studies also included a normative comparison group following the completion of both the control and experimental interventions (Dozier et al., 2006; Dozier et al., 2008).

Throughout both the current review, and the previous review conducted by Grube and Liming (2018), it was identified that researchers commonly utilised the DEF program as a control intervention for the purpose of their RCTs. This was due to the fact that the DEF program and ABC intervention are both similar in that they are manualised, home-based parenting interventions that occur over a total of 10, one-hour-long sessions (Labella et al., 2020; Raby et al., 2020). Raby et al. (2020) further highlighted that the DEF program was established as an adapted version of a pre-existing home-visiting program designed to enhance the cognitive and language development of participating children. A strong evidence-base supports the efficacy of this program, as well as the adapted DEF program (Yarger et al., 2020; Yarger et al., 2022). The use of a matched control condition such as the DEF allows for the elimination of confounding factors in explaining the observed experimental effects of the ABC, which strengthens the validity and reliability of the results of the reviewed studies, promoting the quality of the evidence supporting the ABC's effectiveness (Yarger et al., 2020; Yarger et al., 2022).

5.5. Location

Findings from the current review indicated that all of the studies included in the final sample were conducted in the USA with a majority of these studies being conducted in the Mid-Atlantic region of the USA (Lind et al., 2021; Raby et al., 2020; Yarger, 2018; Yarger et al., 2020; Yarger et al., 2022). Two studies were reportedly conducted in the state of Delaware in the USA (Velez, 2015; Yarger et al., 2016), while another study was reportedly conducted in multiple locations, namely the states of Pennsylvania, New Jersey, and Delaware (Labella et al., 2020). One study did not report the study location (Berlin et al., 2014). Grube and Liming (2018) identified a similar trend in their review as nine of the ten studies included in their review were conducted in the Mid-Atlantic region of the USA. One study (Sprang, 2009), however, did not provide any information pertaining to their study location.

Although the outcomes of the ABC intervention have been found to be positive in nature as reflected in significant improvements to both child- and parent/parenting-related outcomes, the intervention has a limited geographical profile. The implication of this is that the RCTs that have already been conducted, do not reflect the cross-cultural applicability of the ABC intervention (Willig, 2013). This limits the generalisability of the ABC intervention and does not take into account the unique challenges experienced by diverse populations outside of the USA (Willig, 2013). For this reason, attempts have been made to address this limitation as researchers have set out to assess the efficacy of implementing the ABC intervention with more diverse populations. For example, in a study conducted by Aparicio et al. (2016), the ABC intervention was implemented within the Latinx population, a minority community in the USA. Additionally, an international study has been conducted to establish the efficacy of implementing the ABC intervention in a community of parents and their children living in Norway (Bergsund et al., 2022). Furthermore, only two studies (Mohamed et al., 2023a; Mohamed et al., 2023b) have been conducted thus far within the African context. Thus, while the existing evidence in support of the ABC is noteworthy, research on its cross-cultural applicability and relevance remains in its infancy, which highlights a gap in the knowledge, particularly in the context of non-Western, low-income, and developing contexts.

5.6. Sample Characteristics

Of the nine studies included in the final sample for the purpose of the current review, eight studies were identified to have utilised a sample consisting of child welfare involved children and their caregivers. Referral sources for the studies consisted of services such as CPS, adoption centres and agencies, family services diversion programs, and parent support groups

(Labella et al., 2020; Lind et al., 2021; Raby et al., 2020; Velez, 2015; Yarger, 2018; Yarger et al., 2020; Yarger et al., 2016; Yarger et al., 2022). One study utilised a sample of infants living with their biological mothers who were receiving in-patient substance-abuse treatment (Berlin et al., 2014). Similar to the current study, the review conducted by Grube and Liming (2018) outlined that the primary service sector from which their final sample of studies recruited their participants was that of child welfare agencies. These samples consisted of children who had been exposed to the child welfare system in some capacity, either as a result of substantiated claims of abuse that necessitated being removed from their biological family and placed in foster care, or unsubstantiated claims of maltreatment that led to their enrolment in family services diversion programs (Grube & Liming, 2018). The participating children were found to have all been exposed to some form of ECA, and subsequently, the ABC intervention was found to be beneficial in allowing them to better develop their regulatory capacities, and a healthier and more organised attachment (Grube & Liming, 2018). These findings are unsurprising given that the ABC was developed specifically for children exposed to ECA (Dozier & Bernard, 2019).

When exposed to ECA, children commonly experience caregiving practices and parenting behaviours that are characteristically frightening for a child or unpredictable in nature (Carrera et al., 2019; Harmon-Jones & Richardson, 2021; Yazgan et al., 2021). Examples of ECA include neglect or abuse, loss, and exposure to violence and crime to name a few. In such instances, parenting may become hostile and involve caregivers employing harmful discipline practices or engaging with their children in a dismissive or aloof manner (Carrera et al., 2019; Harmon-Jones & Richardson, 2021; Yazgan et al., 2021). Consequently, children exposed to these parenting behaviours more likely to experience avoid-approach dilemmas by seeking out proximity with their caregivers when feeling distressed while struggling with an internal conflict regarding the safety of doing so and thus feeling the need to avoid them simultaneously (Ensink et al., 2019; Fearon & Belsky, 2018; Lionetti, 2014; Tabachnick et al., 2021). This places the child at an increased risk for the development of a disorganised attachment which has been found to have a negative influence on the child's developmental trajectory subsequently placing them at an increased risk of developing later-life psychopathology and poor physical health (Ensink et al., 2019; Fearon & Belsky, 2018; Lionetti, 2014; Tabachnick et al., 2021). It is for this reason that the focus of the ABC has been on populations that are exposed to ECA in an attempt to prevent and remediate attachment disorganisation as a way of promoting optimal health and development through early intervention.

5.7. Intervention Characteristics

Of the nine studies included in the current review, eight reported that the setting of the administration of the ABC intervention was that of the home environment, despite participating children living with either their biological parents or foster caregivers. One study (Berlin et al., 2014) utilised an inpatient substance abuse rehabilitation centre as their setting, however, mothers lived with their infants in apartment-like environments. Five of the studies included in the final sample assessed children and their biological caregivers (Berlin et al., 2014; Lind et al., 2021; Raby et al., 2020; Yarger et al., 2020; Yarger et al., 2022), while three assessed children living with foster caregivers (Velez, 2015; Yarger, 2018; Yarger et al., 2016). A majority of the studies included in the final sample ensured that fidelity adherence and monitoring was done and that manualised protocols were followed for the administration of both the experimental and control interventions. This is significant as it implies that the effects of the ABC intervention occurred as intended rather than due to differential implementation of the intended intervention (St. Peter, 2023).

In their review, Grube and Liming (2018) also indicated that many of the studies included in their final sample had ensured fidelity adherence which suggests that when interventions were administered, all interventionists were being supervised at the time, and adherence to the manualised protocols of the intervention took place. Additionally, Grube and Liming (2018) reported in their review that nine of the ten studies included in their final sample made use of the home environment of participating children as the setting for the administration of either the experimental or control interventions as far as possible. One study (Sprang, 2009) utilised a clinic-treatment setting for the administration of the ABC intervention; however, participating children were living in foster care at the time of administration.

The emphasis of the home-based focus of the ABC is in line with research demonstrating the effectiveness of home-based interventions on child outcomes (Peacock et al., 2013). Sweet and Appelbaum (2004) highlight three reasons that home-based interventions are beneficial, which may play a role in the utility of the ABC given its home-based approach. First, utilising home-visits creates logistical ease for participating parents, especially when intervening in low-income communities, or when intervening for prolonged periods of time. Second, home-visits allow for a more wholistic intervention approach that includes all family members that a child may be exposed to on a daily basis, as opposed to only one parent or caregiver at a time. Not only does the naturalistic, everyday context of the family facilitate the relevance of the learnings of the intervention, but this is further beneficial as it allows for clinicians and interventionists to provide personalised assistance to particular family members,

when needed. Lastly, home-visits place importance on the concept of prevention, over-and-above simply treating a problem. Through the implementation of home-visits, clinicians and interventionists not only modify or adapt the behaviours and interactions of family members, but they also aid in maintaining the changes for a prolonged period of time. The implications of this is that this can increase the likelihood that these new behaviours and interactions will remain in practice by participating family members (Sweet & Applebaum, 2004).

5.8. Outcomes of the ABC Intervention

5.8.1. Effectiveness of the ABC on Child-Related Outcomes

Through conducting the current review, the ABC intervention was found to be beneficial for at-risk children as the content of the review expounded the positive changes that the intervention elicits in child regulatory capacities and attachment. Consequently, these positive changes increase the likelihood that these at-risk children will experience a more normative developmental trajectory as a result of the implementation of the ABC intervention. Of the nine studies included in the final sample of studies for the current review, five assessed the effects of the ABC intervention on child-related outcomes. These outcomes included diurnal cortisol levels, infant attachment quality, child anger dysregulation and adaptive regulation, and child social-emotional competence.

5.8.1.1. Diurnal cortisol levels. Lastly, the current review identified that only one of the nine studies within the final sample aimed to assess the effects of the ABC intervention on the diurnal cortisol levels of participating children. To do so, the study utilised saliva sampling. The findings suggested that children exposed to the ABC intervention displayed slightly higher waking levels of cortisol than children exposed to the DEF program (Raby et al., 2020). Children exposed to the ABC intervention, however, demonstrated a steeper decline in their levels of cortisol from the time of waking to the time of sleeping as compared to children exposed to the DEF program (Raby et al., 2020). This implies that, despite demonstrating a marginally higher level of cortisol upon waking up, children exposed to the ABC intervention are more likely to experience a more significant, and normative decrease in their cortisol levels over the course of the day until they fall asleep (Raby et al., 2020).

These findings are consistent with the outcomes presented by Grube and Liming (2018) in the study conducted by Bernard et al. (2015), which suggested that when children were exposed to the ABC intervention, they experienced healthier cortisol regulation and production patterns than children exposed to the DEF program. It should be noted, however, that in Grube and Liming's (2018) review, Dozier et al. (2006) conversely found that children exposed to the

ABC intervention displayed lower waking cortisol levels than those exposed to the DEF program. Grube and Liming (2018) indicated that through further analysis, Bernard et al. (2015) attributed this discrepancy to the differences present between their participants and those of the study conducted by Dozier et al. (2006). Bernard et al. (2015) reported that although the measurement tool and procedure were identical to Dozier et al. (2006), their sample of participants consisted of children living with high-risk biological parents whereas the sample utilised by Dozier et al. (2006) consisted of children and their foster caregivers. Consequently, Bernard et al. (2015) believed that caregiver type may influence the resulting cortisol data of children being exposed to either the experimental intervention or control intervention.

The findings of the current and previous review on the positive effects of the ABC on cortisol regulation are significant because prolonged exposure to cortisol, as is commonly the case when a child is exposed to ECA, can be detrimental in a number of ways. This could include difficulties with weight regulation, impaired sleeping patterns, and immune system suppression all of which could have a range of negative physical and mental health implications for children (Izawa et al., 2012; Wexler et al., 2020). When a child is exposed to ECA, their bodies undergo a biological stress response whereby their levels of glucocorticoids in the form of cortisol increase as a result of the activation of the hypothalamus–pituitary–adrenal cortex (HPA) system (Dozier et al., 2006; Dozier et al., 2008; Bernard et al., 2015b). This implies that a child will, in times of significant distress, produce increased amounts of cortisol. In children exposed to ECA, the activation of the HPA-axis is chronic leading, in turn, to chronic exposure to higher-than-usual levels of cortisol. Glucocorticoids are responsible for the regulation of circadian patterns within an individual which implies that when distressed, people experience biological hyperactivity which directly impacts the time in which a person goes to sleep or wakes up, as well as their need to eat and socialise (Dozier et al., 2006; Dozier et al., 2008; Bernard et al., 2015b). Caregivers have been found to play a significant role in assisting the regulation of these stress responses in infants and through optimal interactions between a caregiver and their child, infants are found to demonstrate a more normative regulation of their HPA axis (Dozier et al., 2006; Dozier et al., 2008; Bernard et al., 2015b). This suggests that through mitigating the stress response for a child exposed to adversity, caregivers not only aid in regulating their child's emotional and behavioural states, but their biological states as well (Dozier et al., 2006; Dozier et al., 2008; Bernard et al., 2015b). This speaks to the significance of the role of the ABC in not only modifying parenting behaviour to make caregivers more sensitive and responsive, but to regulate the diurnal cortisol levels of participating children.

5.8.1.2. Attachment quality. With regards to assessing the effects of the ABC intervention on the attachment quality of participating children, the most commonly utilised measurement tool identified throughout the current review was that of the SSP, which is a well-validated and reliable measure that is regarded as the 'gold standard' in the assessment of attachment (Solomon & George, 2016). The current review found that no significant differences were present between children exposed to the ABC intervention and those exposed to the DEF program (Velez, 2015; Yarger, 2018). This departs from the conclusions drawn by Grube and Liming (2018) who found in their review that when children were exposed to the ABC intervention, they displayed decreased rates of disorganised attachments, increased rates of organised attachments and less avoidant behaviour when dysregulated. This implies that they are more likely to view their caregivers as a secure base and safe haven thus allowing them to better explore their external worlds with increased confidence thus increasing the likelihood of a more normative developmental trajectory (Fearon & Belsky, 2018; Groh et al., 2012). The two studies included in the current review that assessed attachment as an outcome both used notably smaller sample sizes compared to those studies included in Grube and Liming's (2018) review. This may have limited statistical power which may explain the null findings on attachment outcomes in the current review. Given that, in general, attachment-based interventions—including the ABC (Bernard et al., 2012; Dozier et al., 2009; Zajac et al., 2020)—have consistently demonstrated effectiveness on attachment security and attachment organisation (Bakermans-Kranenburg et al., 2003; Facompré et al., 2018; Mountain et al., 2017), these null findings are likely the result of this methodological limitation of these two studies.

5.8.1.3. Regulatory capacities and socioemotional competence. Furthermore, the current review identified that when assessing the regulatory capacities of participating children, the most common measurement tool utilised by researchers was that of the Tool Task. Findings from this study indicated that children living with foster caregivers are more likely than those living with their biological parents to display better anger regulation regardless of the intervention group that they were assigned to (Labella et al., 2020). According to Labella at al. (2020), foster care is viewed as a protective environment and as such, when placed in foster care, this population of children are more likely to engage in increased self-regulation. When exposed to ECA and the related environments, however, children are more likely to experience heightened stress responses, such as the flight or fight responses, in an attempt to survive the difficulties that they are exposed to (Labella et al., 2020).

Similarly, in their review, Grube and Liming (2018) found that when children were exposed to the ABC intervention, they engaged in less expression of negative affect when compared to children exposed to the DEF program. Additionally, children exposed to the ABC intervention demonstrated an increased capacity for emotion regulation (Grube & Liming, 2018). Consequently, these children also demonstrated decreased internalising and externalising behaviour (Grube & Liming, 2018). This implies that when exposed to the ABC intervention, children were less likely to display anger directed towards their caregivers, or overall feelings of sadness and anger. The above findings highlight that the ABC intervention positively influences the regulatory capacity of participating children while also impacting their socioemotional functioning through decreasing the degree of internalisation and externalisation. They are more likely to demonstrate improved anger-regulation thus displaying fewer negative affects as well as decreased anger directed towards their caregivers.

The most common measurement tool utilised to assess the social-emotional competence of participating children was that of the BITSEA questionnaire and DB-DOS assessment. Generally, the findings suggested that children exposed to the ABC intervention are more likely to display fewer emotional and behavioural difficulties and thus, show higher social-emotional competence than children exposed to the DEF program (Lind et al., 2021; Yarger et al., 2020). This implies that when a child is exposed to the ABC intervention, they are more likely to better understand their emotions than children exposed to the DEF program and they are better equipped to manage and regulate them (Lee et al., 2022; Lind et al., 2021; Yarger et al., 2020). This is significant because it allows children previously exposed to ECA to better navigate social interactions thus resulting in improved peer associations and social development (Lee et al., 2022; Bender et al., 2022; Farahani et al., 2023). This may result in children exposed to the ABC demonstrating increased empathy, problem-solving, and communication skills which are necessary to manage relationships, and effectively express emotions (Lee et al., 2022; Lind et al., 2021; Yarger et al., 2020). Furthermore, the performance of participating children who were exposed to the ABC intervention was also found to closely resemble that of typically developing children thus suggesting that when exposed to the ABC intervention, they are more likely to experience a normative, and healthier trajectory of development (Lind et al., 2021; Yarger et al., 2020). Given that children with ECA regularly present with impaired emotion regulation and expression, difficulty empathising, and establishing meaningful interpersonal relationships (Bender et al., 2022; Farahani et al., 2023), these effects of the ABC are noteworthy as they indicate these negative outcomes of ECA can be remediated through attachment-based intervention—the ABC, specifically.

In their review, Grube and Liming (2018) did not specifically report findings related to social-emotional competence, however, they did report that the ABC intervention played a significant role in increasing the receptive language abilities of participating children. Additionally, findings from their review highlighted that foster children exposed to the ABC intervention were prone to the development of a higher cognitive flexibility and Theory of Mind than children exposed to the DEF program. Furthermore, Grube and Liming (2018) highlighted that when exposed to the ABC intervention, participating children demonstrated cognitive flexibility and Theory of Mind that was comparable to that of a normative comparison group of typically developing children. This suggests that the ABC intervention, therefore, supports the normative cognitive development of at-risk children; specifically, their executive functioning.

These findings on receptive language and executive functioning are significant in relation to the findings on social-emotional competence in the current review because language ability has been found to positively influence an individual's social understanding (Bernard, 2006; Halle et al., 2014; Riggs et al., 2006). Additionally, language ability has been found to increase an individual's ability to effectively express and communicate their emotions to others as well as interpret social cues occurring within social interactions (Bernard, 2006; Halle et al., 2014; Riggs et al., 2006). Furthermore, with regards to cognitive development, enhanced executive functioning can result in improved working memory, cognitive flexibility, and Theory of Mind which has been found to improve an individual's understanding and regulation of their own emotions and behaviours (Bernard, 2006; Halle et al., 2014; Riggs et al., 2006). This may result in the engagement of more prosocial behaviour thus resulting in the maintenance of meaningful interpersonal relationships (Bernard, 2006; Halle et al., 2014; Riggs et al., 2006). This suggests that, through exposure to the ABC intervention, children are likely to experience improvements in a wide variety of crucial domains which may have a knock-on effect on other aspects of their development.

5.8.2. Effectiveness of the ABC on Parent-/Parenting-Related Outcomes

Of the nine studies included in the final sample of studies for the current review, five assessed the effects of the ABC intervention on parent-/parenting-related outcomes. These outcomes included the degree of parental sensitivity, intrusiveness, and positive regard displayed by participating caregivers, as well as atypical or anomalous parenting behaviour. The most common measurement tool utilised to assess the degree of parental sensitivity, intrusiveness, and positive regard displayed by participating caregivers was that of unstructured

play activities wherein caregiver-child interactions were recorded and coded according to adapted ORCE scales (Velez, 2015; Yarger et al., 2020; Yarger et al., 2016). One study, however, utilised the MBQS for the purposes of coding sensitivity (Berlin et al., 2014).

The findings of the current review highlighted that those caregivers exposed to the ABC intervention displayed significantly higher parental sensitivity and positive regard for their children than caregivers exposed to the DEF program. Additionally, participating caregivers assigned to the ABC groups employed significantly less intrusive behaviours when interacting with their children (Berlin et al., 2015; Velez, 2015; Yarger et al., 2020; Yarger et al., 2016). These findings are significant as increased sensitivity and decreased intrusive parenting behaviour has been found to support healthier attachment security while enabling children to develop and enhance their self-regulatory capacities (Forrer et al., 2024; Gao & Wang, 2024; Mesman et al., 2012). Additionally, increased sensitivity and decreased intrusive parenting behaviours can lead to a healthier and more normative trajectory of development for a child thus mitigating the risk of future development of psychopathology in the child (Forrer et al., 2024; Gao & Wang, 2024; Mesman et al., 2012). As seen above, parental sensitivity has also been found to mediate the relationship between the ABC intervention and positive child-related outcomes such as improved language ability and enhanced cognitive development (Bernard et al., 2017; Lewis-Morarty et al., 2012). This foregrounds the significance of sensitivity in child development and, hence, its primacy as the direct focus of many attachment-based interventions. This reflects the importance of an attachment-based intervention such as the ABC which aims to modify parenting behaviour so that caregivers can display increased sensitivity and responsiveness towards their children (Berlin et al., 2015; Velez, 2015; Yarger et al., 2020; Yarger et al., 2016). These positive parenting effects are achieved through coaching parents on how to employ greater sensitivity in their parenting practices (Berlin et al., 2015; Velez, 2015; Yarger et al., 2020; Yarger et al., 2016). Findings further suggested that when caregivers were exposed to the ABC intervention, they also displayed greater rates of change with regards to these measurement outcomes (Yarger et al., 2020; Yarger et al., 2016). These findings are also consistent with the literature on the broader set of attachment-based interventions which demonstrates their effectiveness on sensitivity (Bakermans-Kranenburg et al., 2003; Mountain et al., 2017).

The current review further identified one study that utilised the AMBIANCE to assess the effects of the ABC intervention on atypical or anomalous parenting behaviours. The findings from the study suggest that caregivers who are exposed to the ABC intervention display decreased levels of withdrawal from their children, and their parenting is less likely to

be classified as disruptive in nature (Yarger, 2018). The resulting effect is that the children of these caregivers are less likely to demonstrate disorganised attachments and are more likely to better regulate their behaviours and emotions (Yarger, 2018). Cassidy et al. (2017) highlight that there is a significant association between atypical or anomalous caregiving behaviour and attachment disorganisation. Consequently, this aspect of parenting is of particular importance and requires intervention over and above the assessment of parental sensitivity to lead to more significant reductions in attachment disorganisation (Cassidy et al., 2017). ECA is associated not just with insensitive caregiving, but with disrupted, abusive, or neglectful caregiving, which are associated with attachment disorganisation. Therefore, these findings of the ABC related to the reduction of atypical or anomalous parenting behaviours, specifically withdrawal, are promising and may also be part of the explanation for why the ABC results in reduced attachment disorganisation (Bernard et al., 2012). However, given that only one study has examined this outcome, additional research is required to further elucidate the effects of the ABC on atypical and anomalous caregiving.

5.9. Conclusion

The ABC intervention has been found to positively influence the developmental trajectory of children prone to the development of a disorganised attachment as a result of exposure to ECA and parenting that is characteristically insensitive, unresponsive, and intrusive in nature. Through the implementation of the ABC intervention, children were found to display steeper declines in their waking to sleeping cortisol levels, improved self-regulatory capacities, decreased internalising and externalising behaviours, enhanced social-emotional competence, and a more normative, and healthier developmental trajectory. Furthermore, the ABC intervention was found to positively influence the sensitivity and responsiveness of participating caregivers, while decreasing the degree of intrusiveness they employ in their parenting behaviours. Parents who participated in the ABC intervention were also found to demonstrate more positive regard for their children. These findings coincided with those identified by Grube and Liming (2018) in their review of the effects of the ABC intervention and thus the current review has resulted in an update of the pre-existing knowledge regarding the effects of the ABC intervention. Additionally, the current review served to expand upon this knowledge by including a review of the parent-/parenting-related outcomes of the ABC intervention.

Chapter 6: Conclusion, Limitations, and Recommendations

6.1. Introduction

The following chapter will conclude the study by summarising the primary topics of discussion presented throughout the review. Additionally, this chapter will consider the implications of the findings as well as the limitations of the review such as issues with the sample size, data collection methods, measurement tools for example, or any aspects that may have impacted the findings. Lastly, recommendations will be made for future research.

6.2. Overview of Review

A child's emotional, cognitive, and physical development may be significantly influenced by the quality of the attachment relationship with their primary caregiver (Fearon & Roisman, 2017; Juang et al., 2018; Kuo et al., 2019). Consequently, childhood development may be hindered as a result of the development of insecure or disorganised attachments (Bick et al., 2019; Fearon & Roisman, 2017; Schroeder et al., 2020), which are common amongst children who are exposed to ECA such as neglect or abuse in some form, or when parenting is characteristically disrupted such as in the case of single parenthood, separation and divorce, or the death of a parent to name a few (Bick et al., 2019; Kuo et al., 2019; Schroeder et al., 2020). When a child is exposed to maladaptive circumstances such as these, they demonstrate increased internalising and externalising behaviours and consequently, they are at higher risk for the development of psychopathology throughout their lifetimes (Bick et al., 2019; Juang et al., 2018; Kuo et al., 2019).

In an attempt to combat these issues, and to promote and support the healthy development of children, various attachment-based interventions have been established. Practitioners and researchers utilise these interventions with the intention of enhancing parent-child interactions as well as parenting behaviours to ensure the development of more adaptive and secure parent-child attachment (Bernard et al., 2015a; Yarger et al., 2020). One such intervention, the ABC, was designed by Mary Dozier to mitigate the effects of ECA for children in foster care, in particular (Dozier & Bernard, 2017; West et al., 2022). The intervention aims to promote healthier and more normative childhood developmental trajectories and was initially established to assist foster parents to modify their parenting behaviours to ensure that they employ more sensitivity, nurturance, and responsiveness (Dozier & Bernard, 2017; West et al., 2022). Interventionists of the ABC utilise ten home-based sessions wherein a parent

coach observes parent-child interactions and provides in-vivo commentary to aid in adapting parenting behaviours to promote the establishment of a secure base and safe haven for children (Dozier & Bernard, 2017; West et al., 2022). Moreover, the intervention aims to support the development of adaptive behaviour and emotion regulation abilities, as well as increased socioemotional development in participating children (Dozier & Bernard, 2017; West et al., 2022).

Prior to the current study, only one systematic review existed to summarise the findings on the effects of the ABC intervention. However, this review by Grube and Liming (2018) only included studies assessing the effects of the ABC on child-related outcomes. For this reason, the current review aimed to qualitatively summarise and synthesise the literature supporting the ABC intervention as it pertained to both child and parent-/parenting-related outcomes to update and extend existing knowledge. The findings of the current review suggested that the ABC intervention promoted healthier parent-child relationships through improving the quality of parenting received by participating children. Parents exposed to the ABC intervention were found to demonstrate more sensitive parenting behaviours, a higher degree of positive regard, and less intrusive parenting behaviours. Participating children were also found to employ more adaptive emotion and behaviour regulation while findings from the review conducted by Grube and Liming (2018) suggested that participating children demonstrated more organised attachments towards their caregivers. The implication thereof is that when children were exposed to the ABC intervention, they demonstrated a more normative, and healthier developmental trajectory as a result.

6.3. Implications of the Review Findings

The outcomes of the ABC intervention were found to be beneficial to the development of young children exposed to various child welfare agencies and thus these findings may be beneficial for future policymaking, understanding of theory, and clinical practice involving children and their caregivers.

With regards to policymaking, the findings of the current review, as well as the previous review may be beneficial in shaping the way in which young children enter and exit the child welfare system. Policies regarding adoption of children from adoption centres or clinics, for example, may adapt their adoption policies to ensure that all children and their prospective adoptive parents undergo the implementation of the 10 home-based sessions of the ABC intervention. This would promote not only a healthier developmental trajectory for a population of children at highest risk of experiencing ECA, but also a healthier parent-child relationship

at the earliest stage of the adoption process. Additionally, policymakers within child welfare services such as CPS who are involved in managing unsubstantiated claims of child maltreatment or claims of maltreatment that were not severe enough to necessitate the removal of the child from their biological parents, may adapt their policies regarding the circumstances of children remaining with their parents. Through the implementation of the ABC intervention in such cases, the likelihood of further claims of maltreatment and further CPS involvement may be somewhat reduced if adequately integrated into the process of family assessments for example. Indeed, the ABC has been found to significantly reduce child abuse potential in biological parents at risk of abusing their children (Sprang, 2009).

The findings from the current review may also impact future clinical practice as it expands on Grube and Liming's (2018) review by including a description of the parent-/parenting-related outcomes in addition to the child-related outcomes. The implication of this is that this knowledge can better inform practitioners working with children in mental health settings as well as their caregivers to promote the quality of parenting that is conducive to optimal childhood development. Through these findings, the understanding of attachment theory and its applicability to unique cases such as foster care and exposure to ECA may also be broadened (e.g., the mediating role of sensitivity in cortisol regulation and language development). Practitioners will be better equipped to assist parents in understanding the impact of suboptimal parenting behaviours on their child's overall development. Additionally, practitioners will be better equipped to aid these parents in modifying these parenting behaviours so as to ensure the best opportunities for their children to experience a healthier developmental trajectory.

Furthermore, in their review, Grube and Liming (2018) identified that through the implementation of the ABC intervention in various RCTs, they were able to establish the beneficial longitudinal effects of the intervention on the mental health of participating children. Similarly, in the current review, the findings from the reviewed studies highlighted that through the implementation of the ABC intervention, children experienced long-term benefits regarding their development. As such, this knowledge further reinforces the importance of the quality of parenting provided to children and may be used to further promote a healthier parent-child relationships in service of sustained, longer-term benefits for child development and wellbeing.

6.4. Strengths of the Review

Methodological rigour was maintained throughout conducting the current review by utilising a detailed search strategy and subsequent study screening process that incorporated

the PICO Framework. This ensured that studies being included in the final sample were relevant to the aim and objectives of the current review and maintained parsimony with the review conducted by Grube and Liming (2018). Thereafter, the final sample of studies included in the review were assessed according to the Cochrane Risk of Bias tool thus indicating the degree of bias present in each study. In order to ensure further methodological rigour, the assessment of the degree of risk was conducted separately by two independent raters. A consensus agreement was reached regarding the overall risk of bias within each study. Furthermore, methodological rigour was maintained throughout the process of conducting the current review through the use of the PRISMA diagram as seen above, which ensures transparent reporting of the search strategy and implementation of the inclusion and exclusion criteria.

6.5. Limitations and Recommendations for Future Research

One of the limitations of the current review was that of the date restriction stipulated for the final sample of studies to be included in the review. Due to this restriction, studies assessing the effects of the ABC intervention on parent-/parenting-related outcomes that were conducted prior to 2013, were not included in the current review. This resulted in a limited sample size of studies assessing parent-/parenting-related outcomes. It is recommended that future reviews include studies conducted prior to 2013 to capture a wider sample of studies assessing parent/parenting-related outcomes of the ABC.

Although studies of the ABC have been conducted internationally, none met the inclusion criteria for the current review as they either did not assess the effects of the intervention on either child- or parent-/parenting-related outcomes or were not RCTs. Using wider eligibility criteria may allow for the inclusion of such studies in future reviews, which may then be able to draw conclusions related to the cross-cultural applicability of the ABC which the current review was unable to do. Furthermore, the fact that no RCTs have been conducted outside of the USA also suggests there is significant scope for larger-scale efficacy trials of the ABC in other parts of the world especially in non-Western contexts where there is preliminary evidence that the ABC is not only effective (Mohamed et al., 2023a), but also socially valid and feasible (Mohamed et al., 2023b).

Furthermore, studies not published in English were excluded from the current review. The limitation of this is that this may discount significant studies that were conducted with the intention of assessing the effects of the ABC intervention, internationally. Excluding the

findings of these studies may have, therefore, effected the overall conclusion drawn by the current review.

Moreover, the few studies examining adapted versions of the ABC such as the ABC for Toddlers (ABC-T) and the modified ABC (mABC) were not included in this review. It may be beneficial to review the effects of these studies, once more RCTs have been conducted regarding these interventions and to compare the effects of the originally developed ABC intervention to those of its adapted versions. By doing so, researchers will gain a better understanding of whether modifying the ABC intervention to suit particular use cases improves, maintains, or compromises the primary components of the ABC intervention and its implementation. Additionally, through conducting further RCTs utilising modified versions of the ABC intervention and comparing the findings to those of the original ABC intervention, researchers broaden our understanding of how and when to modify the intervention to best suit the needs of a particular population.

Additionally, as discussed previously, it is recommended that when assessing the effects of the ABC intervention, researchers should consider utilising alternative attachment-based interventions for the purpose of comparison as this presents a significant gap in the research. This will allow researchers, practitioners, and policymakers to enhance their selection of interventions that will be most beneficial for specific cases as doing so increases our understanding of the mechanisms underlying each intervention. These mechanisms may be shared among the different interventions being compared, or unique to a particular intervention and thus, a unique use case or population. It may also be beneficial to understand how the ABC intervention compares to other attachment-based interventions as this can inform the best practice for future clinical work related to childhood mental health.

Lastly, it may be beneficial to conduct a meta-analytic synthesis of the evidence established through the use of RCTs on the effectiveness of the ABC intervention so as to provide a quantitative summary of the effects of the intervention. This may aid in providing a statistical analysis of the pooled effects of the ABC intervention that can be used in conjunction with both the current and previous SRs to offer a wholistic representation of the intervention outcomes.

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Appendices

Appendix A

Faculty of Humanities
Fakulteit Geesteswetenskappe
Lefapha la Bomotho

28 October 2022

Dear Mr TA Reynolds

Project Title:	The effects of the Attachment and Biobehavioural Catchup intervention on parenting- and child-related outcomes: A systematic review
Researcher:	Mr TA Reynolds
Supervisor(s):	Mr AR Mohamed
Department:	Psychology
Reference number:	17084505 (HUM024/0922)
Degree:	Masters

Thank you for the application that was submitted for ethical consideration.

The Research Ethics Committee notes that this is a literature-based study and no human subjects are involved.

The application has been approved on 27 October 2022 with the assumption that the document(s) are in the public domain. Data collection may therefore commence, along these guidelines.

Please note that this approval is based on the assumption that the research will be carried out along the lines laid out in the proposal. However, should the actual research depart significantly from the proposed research, a new research proposal and application for ethical clearance will have to be submitted for approval.

We wish you success with the project.

Sincerely,

Prof Karen Harris
Chair: Research Ethics Committee
Faculty of Humanities
UNIVERSITY OF PRETORIA
e-mail: tracey.andrew@up.ac.za

Room 7-27, Humanities Building, University of Pretoria, Private Bag X20, Hatfield 0028, South Africa
Tel +27 (0)12 420 4853| Fax +27 (0)12 420 4501|Email pghumanities@up.ac.za | www.up.ac.za/faculty-of-humanities

Appendix B

Table B1

Individual Ratings of Methodological Quality of Final Sample

	Cochrane Risk of Bias: Domains									
Author and Year	**Selection**		**Reporting**		**Performance**		**Detection**		**Attrition**	
	Rater 1	***Rater 2***	***Rater 1***	***Rater 2***	***Rater 1***	***Rater 2***	***Rater 1***	***Rater 2***	***Rater 1***	***Rater 2***
Yarger et al. (2016)	Low	Unclear	Low	Low	Low	Low	Low	Low	Low	Low
Labella et al. (2020)	Low	Unclear	Low	Low	Low	Low	Low	Low	Low	Low
Raby et al. (2020)	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Yarger et al. (2020)	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Lind et al. (2021)	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Yarger et al. (2022)	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Berlin et al. (2014)	Low	Unclear	Low	Low	Low	Low	Low	Low	Unclear	Unclear
Velez (2015)	Unclear	Unclear	Low	Low	Low	Low	Low	Low	Unclear	Unclear
Yarger (2018)	Unclear	Unclear	Low	Low	Low	Low	Low	Low	Low	Low