Interventions and Strategies for Addressing Behavioural Effects of Adverse Childhood Experiences: A Scoping Review

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Declaration

I, Athenea Faye Cramer (Student 222116641), hereby declare that the work of the following Dissertation, with the title:

INTERVENTIONS AND STRATEGIES FOR ADDRESSING BEHAVIOURAL EFFECTS OF ADVERSE CHILDHOOD EXPERIENCES: A SCOPING REVIEW

was solely undertaken by myself, with no help from sources other than those allowed. All sections of the paper that use quotes or describe an argument or concept developed by another author have been referenced, including all secondary literature used, to show that this material has been adopted to support my dissertation. This dissertation has not been previously submitted for assessment to another institution or for another qualification.

Date: 2 December 2022 Signature 

Acknowledgments

Thank you

Thank you

Thank you

My thanks go to The Universe, God, my Source, and my higher power, who has made this journey possible. Without You, I would not be here! Thank you ♥

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I dedicate this dissertation to:

My husband Leigh: You believe in me and all my crazy ideas no matter what. You support me, love me, cheer the loudest and are always my source of comfort in the darkest times. I could never have done this without you. Thank you, my love.

My Angel: Thank you for supporting my dream at your own sacrifice. I am doing this for us and will continue to strive everyday so that you have the best life. Thank you my Precious.

My parents, sisters, and extended family: You are always there, supporting, clapping, and checking in when I need you. Your love, care and assistance with this whole year has made this possible. Without your support, I would not have been able to chase this dream and for that I am truly grateful.

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Abstract

Background:

The long-term psychological and physiological effects of adverse childhood experiences (ACE) have been widely researched. Interventions that treat ACE have been less researched, but there are interventions that have shown efficacy in reducing the harmful effects of ACE. **Objective:** This study aims to explore the availability of evidence-based interventions for addressing the behavioural effects of adverse childhood experiences (ACE) and provides recommendations for applying them in the South African context. **Methods and Analysis:** A scoping review was conducted to synthesise available literature on evidence-based interventions that treat ACE. The data was charted according to author, year, study title, interventions and strategies utilised, and results. The data were screened through a PRISMA-ScR flow diagram according to the inclusion and exclusion criteria and a total of 12 studies were eligible for inclusion. **Results and Discussion:** Demonstrated themes were identified thematically to provide a narrative interpretation of the included literature. The interventions were reviewed according to their approach, including family, school-based, institution-led, and individual-focused. School-based interventions, parenting programmes and individual psychotherapy interventions show various levels of success as is discussed here. Gaps in the literature highlight limited research on interventions designed or tested for the South African population. **Conclusion and Recommendations:** Evidence-based interventions that treat the behavioural effects of ACE show efficacy in various settings and have proven to reduce the harmful effects of ACE. More interventions should be researched in the South African context as the diverse cultures, and high exposure to trauma and violence could impact the efficacy of interventions.

Keywords: ACE, adverse childhood experiences, trauma, interventions, strategies, behavioural effects

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Chapter 1: Introduction

Exposure to trauma, particularly during childhood, can have devastating, long-term physical, mental and emotional effects on an individual, leading to behavioural symptoms that can be difficult to overcome if left untreated. In South Africa (SA), adversity, crime and violence have become the norm. Children often witness intimate partner violence, gender-based violence, and experience loss or suffering due to the devastating consequences of a high rate of HIV-related deaths. It is considered essential to research and implement appropriate treatment regimens to reduce the harmful effects of adverse childhood experiences, particularly as they present in SA.

Adverse childhood experiences have been widely researched, and the health-related effects have been well documented in various literature review studies (Felitti et al., 1998). Specific strategies and interventions that have been used to treat the behavioural effects of adverse childhood experiences and their efficacy require more attention. Currently, the research is somewhat limited, but the available studies have shown efficacy in helping individuals to overcome adversity from childhood experiences.

This paper will investigate the evidence-based strategies and interventions that treat the behavioural effects of ACE. It will also provide details of each evidence-based intervention and the results that were achieved.

Operational Definitions

1. Trauma

Trauma has been defined by the American Psychological Association as an “emotional response to a terrible event like an accident, rape, or natural disaster. Immediately after the event, shock and denial are typical” (APA, 2022). Trauma, as it relates to this scoping review

and ACE, includes child abuse (physical, mental, emotional and sexual). It includes exposure to gender-based or intimate partner violence and any event which caused the actual or perceived threat to an individual (APA, 2013).

2. Adverse Childhood Experiences (ACE)

An Adverse Childhood Experience (ACE) is defined as a set of traumatic stressors that an individual has experienced before the age of eighteen. Adverse childhood experiences were initially defined by Felitti et al. (1998) as including direct exposure (personal victimisation) and indirect exposure (witnessing or hearing about the victimisation of a family member, friend or neighbour) to a traumatic event. The different types of victimisation included all forms of abuse (physical, mental, emotional and sexual), neglect (physical and emotional), and household dysfunction (substance abuse, mental illness, interpersonal violence, gender-based violence and incarceration of someone within the household). They can be specified according to whether the ACE occurred as a recurrent or individual event (Zuo et al., 2021). It is also important to note that ACEs can occur in different settings, including the individual's home, the schooling environment, an extended family setting, or within the community as cultural violence that is perpetuated over generations.

The iconic ACE Questionnaire was published in 1998 by Felitti and colleagues and included 10 questions that required a yes/no answer. All the questions relate to experiences that individuals may have gone through during childhood, including any sexual, physical, mental and emotional abuse that may have occurred in their house, directly to them or to another family member. Questions include being threatened with a weapon and whether any family member had ever been incarcerated. Each question totals one point, and the more points accumulated, the higher the risk of exhibiting destructive or damaging behaviours and medical complications in adolescence or adulthood (Felitti et al., 1998).

3. Strategies and Interventions

In this context, a strategy or intervention is any form of evidence-based psychological treatment run in a group or individual capacity. It should have been utilised with individuals who have experienced adverse childhood experiences, or presented with behavioural outcomes thereafter, and have shown a measure of improvement after participating in the chosen treatment (Sahle et al., 2020).

4. Behavioural effects

Behavioural effects, as they relate to this study, are any symptoms which may be indicative of a behavioural, personality or mood disorder and are a direct result of having experienced an ACE. Research studies on the behavioural effects of ACE have identified a high correlation between long-term child maltreatment, adverse household circumstances, drug abuse, domestic violence, and criminal activities within the child's environment. There is a risk of children exhibiting externalising and internalising behavioural problems after exposure to ACE (Hunt et al., 2017). Exposure to ACEs has also been linked to poor academic performance, poor health outcomes, risk of developing mental illness, and certain diseases (Webster, 2022). Other behavioural problems that can result after exposure to ACE include anxiety, attention deficit hyperactivity disorder (ADHD), bipolar disorder, aggression, anger, explosive tempers, inappropriate sexual behaviour, self-harming behaviours, suicidal ideation or attempts, substance use disorders, trauma dissociation, post-traumatic stress disorder (PTSD), complex post-traumatic stress disorder (CPTSD), depression, and memory difficulties etc. (Lucassen et al., 2015). Thompson et al. (2015) found that chronic exposure to ACEs throughout childhood predicted health worries and the use of medical care for individuals, and they appear to affect their physical health in emerging adulthood.

Trauma experienced during childhood results in a disruption in the individual's development. If teachers, parents and professionals know that an individual has experienced trauma and can immediately begin implementing specific evidence-based interventions early on in their lives, the behavioural effects can be mitigated. It can help individuals recover, gain back some self-esteem and self-worth, and develop emotional regulation to enable them to build the internal resilience required to continue on the pathway to a more healthy, balanced and productive adulthood.

In South Africa, resources are scarce, there is a shortage of mental health professionals, and the stigma of mental illness is a real problem. Accordingly, it is vital that interventions and strategies are implemented as soon as possible, preferably in a variety of contexts such as schools, communities and individuals, to help the population recover from years and years of generational trauma, which continues to influence children and adults.

Chapter 2: Literature review and Problem Statement

2.1 Literature Review

2.2 Introduction

This chapter reviews previous literature on the various interventions used to treat the behavioural effects of adverse childhood experiences and will highlight the evidence-based interventions that have shown efficacy. The literature review was guided by the Arksey and O'Malley (2005) process that should be used when conducting a scoping review. Extensive research is available on adverse childhood experiences (Felitti et al., 1998), but the literature on strategies and interventions that highlight the efficacy thereof is limited. Therefore, this scoping review will highlight gaps in the literature where interventions are scarce or lacking. Recommendations for treating the behavioural effects of adverse childhood experiences in South Africa are included in Chapter 5. Further discussion will be reflected in Chapter 4.

2.3 Nature and Scope of the problem

2.3.1 Understanding Adverse Childhood Experiences

In 1998, Vincent J Felitti and colleagues published the ACE-Q (Adverse Childhood Experiences Questionnaire), where he compared adults' current health status with experiences that they had in childhood (Felitti et al., 1998). The original ACE study was a 7-item scale, that examined three types of child maltreatment and four types of "dysfunctional" family experiences (Felitti et al., 1998b). The original ACE study was reviewed and published again as a 10-item questionnaire which has been widely used for understanding traumatic experiences (Rutter, 2021), and classifying adverse childhood experiences. It is the 10-item questionnaire which has been used as the focus of this study, considering that it has been the most used and published study. The questionnaire covers seven categories of adverse childhood experiences,

including those related to abuse, which was specified as either psychological, physical, or sexual abuse, with questions related to each category. There are also questions related to household dysfunction by category, including substance abuse, mental illness, whether a person's mother treated them violently, and if there had been any criminal behaviour in their household (Felitti et al., 1998).

The ACE questionnaire was mailed to 13,494 people, and 9,508 people responded. The participants were selected because they had previously completed a medical examination, and therefore, their ACE results could be compared with their existing medical conditions. The categories were compared to disease, health status, and measures of adult risk behaviour. The results showed that more than half of the participants reported one adverse childhood experience, and the relation to health risk and the number of adult childhood experiences increased with every positive answer on the questionnaire. People who answered "yes" to more than four questions had a 4 to 12-fold increased risk of alcoholism, depression, drug abuse and suicide attempts, a 2 to 4-fold increased admission of smoking, and they rated their health as poor. They also reported a high number of sexual partners and a correspondingly higher rate of sexually transmitted diseases. They also had a 1.4 to 1.6-fold increase in obesity and reported increased rates of physical inactivity.

The study showed a direct correlation between adverse childhood experiences and the presence of adult diseases, including cancer, skeletal fractures, liver disease, ischemic heart disease and chronic lung disease. The more categories of adverse childhood experiences that had been experienced, the higher the number of health risk factors presenting later in life. There is also a greater risk of children developing an oppositional defiant disorder, and conduct disorder later in life, with a higher likelihood of teen pregnancies, school dropouts, drug use, unemployment, and ultimately criminal behaviour in adulthood (Beecham, 2014).

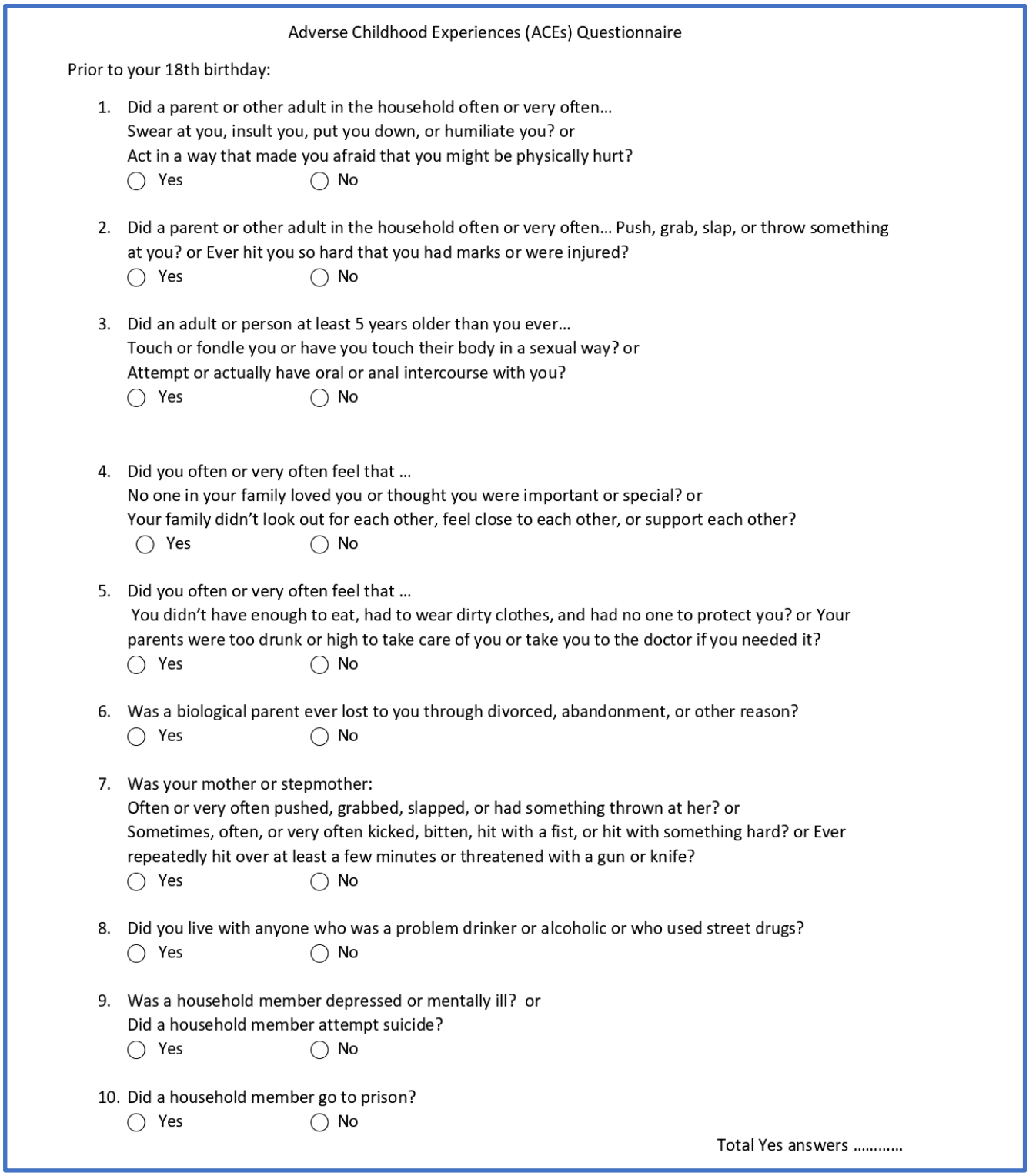
2.3.2 Neurodevelopmental Perspectives

Studies done on the effects of ACE also show that adverse childhood experiences have an impact on different developmental domains (Shonkoff & Garner, 2012), and this can result in violent or aggressive behaviours in children, which might not be caused purely by affected cognitive functioning, but could be as a result of neurobiological responses to the traumatic experiences that they went through early in life. These responses interrupt the key developmental processes that children go through as they mature (Shonkoff & Garner, 2012). It was also found that ACEs can create changes in the brain's functional interconnections, and structural make-up, which controls attachment with others, the body's stress response, and the ability to emotionally regulate. All these factors make individuals vulnerable to mental illness later in life by increasing their susceptibility to unhealthy coping mechanisms and rendering them prone to emotional triggers in their environment (Anda et al., 2006).

Research has also shown that exposure to domestic abuse before the age of two – within the first 1001 critical days of life – manifests as adverse outcomes. These include lower academic performance, social development difficulties, and poor mental and physical health throughout an individual's childhood and adolescent life (Flach et al., 2011). Adverse childhood experiences can begin as early as gestation because the mother transmits her emotional state directly into the environment in which the foetus is developing (Glover & Capron, 2017). The impact of any further stressors that the baby is exposed to further disrupts neurodevelopment, which affects emotional regulation and the child's cognitive functioning, directly resulting in behavioural and emotional disturbances later in life (National Scientific Council on the Developing Child, 2007). Research has also found that all relationships throughout the lifecycle: childhood, adolescence, and adult, are based on the attachment provided during infancy. Any domestic abuse that occurs during childhood hinders the child's

ability to develop stable, consistent, and healthy relationships later in life. Domestic abuse provides an opportunity for generational trauma to be perpetuated and reduces a parent's ability to provide care that is responsive, consistent, and sensitive to their child's needs (Barlow & Underdown, 2017).

The original ACE Questionnaire is presented here in Figure 1.



Adverse Childhood Experiences (ACEs) Questionnaire

Prior to your 18th birthday:

1. Did a parent or other adult in the household often or very often…
   Swear at you, insult you, put you down, or humiliate you? or
   Act in a way that made you afraid that you might be physically hurt?
   ◯ Yes ◯ No

2. Did a parent or other adult in the household often or very often… Push, grab, slap, or throw something at you? or Ever hit you so hard that you had marks or were injured?
   ◯ Yes ◯ No

3. Did an adult or person at least 5 years older than you ever…
   Touch or fondle you or have you touch their body in a sexual way? or
   Attempt or actually have oral or anal intercourse with you?
   ◯ Yes ◯ No

4. Did you often or very often feel that …
   No one in your family loved you or thought you were important or special? or
   Your family didn't look out for each other, feel close to each other, or support each other?
   ◯ Yes ◯ No

5. Did you often or very often feel that …
   You didn't have enough to eat, had to wear dirty clothes, and had no one to protect you? or Your parents were too drunk or high to take care of you or take you to the doctor if you needed it?
   ◯ Yes ◯ No

6. Was a biological parent ever lost to you through divorced, abandonment, or other reason?
   ◯ Yes ◯ No

7. Was your mother or stepmother:
   Often or very often pushed, grabbed, slapped, or had something thrown at her? or
   Sometimes, often, or very often kicked, bitten, hit with a fist, or hit with something hard? or Ever repeatedly hit over at least a few minutes or threatened with a gun or knife?
   ◯ Yes ◯ No

8. Did you live with anyone who was a problem drinker or alcoholic or who used street drugs?
   ◯ Yes ◯ No

9. Was a household member depressed or mentally ill? or
   Did a household member attempt suicide?
   ◯ Yes ◯ No

10. Did a household member go to prison?
    ◯ Yes ◯ No

Total Yes answers .....

Figure 1: Original Adverse Childhood Experiences (ACE's) Questionnaire (Felitti et al., 1998)

There is extensive literature on adverse childhood experiences (ACEs), the classification of an adverse childhood and the long-term negative impacts on those who experience an ACE

(Felitti et al., 1998). Less research has been conducted on the interventions and strategies that can be implemented to help people suffering from the long-term effects of enduring an adverse childhood experience. Research has shown that trauma experienced during childhood is directly related to health-damaging behaviours and poor social and health-related outcomes in adulthood (Greenfield, 2010). The ACE study poses 10 questions related to trauma that may have been experienced during childhood, including any trauma that did not directly happen to a person but may have been witnessed in the household, or happened to another family member. In the weekly Morbidity and Mortality Report, the Centre for Disease Control and Prevention (CDC, 2010) reported that 1 in 6 adults has experienced four or more adverse childhood experiences, and five out of ten deaths are directly related to adverse childhood experiences. They also found that preventing ACEs could reduce depression in adults by as much as 44% (Merrick et al., 2019).

The original ACE study was not considered culturally pertinent because it was conducted on a predominantly white, upper-middle-class population. Further research by Ellis and Dietz (2017) on ACE has shown that the rates of all categories, except for emotional and physical neglect, are greater in low-income populations. It is, therefore, crucial that social contexts are considered when designing, or choosing interventions that treat the behavioural effects of ACE. Ellis and Dietz (2017) developed a framework called *The Pair of ACEs*, which is depicted as a tree (shown below). Adverse childhood experiences include physical and emotional neglect, divorce, mental illness, incarceration, homelessness, domestic violence, substance abuse, emotional and sexual abuse and maternal depression. The framework indicates that certain community environments contribute significantly to an increased risk of experiencing an ACE. The environments include poverty, discrimination, community disruption, lack of opportunity, economic mobility and social capital, poor housing quality and affordability, and violence.

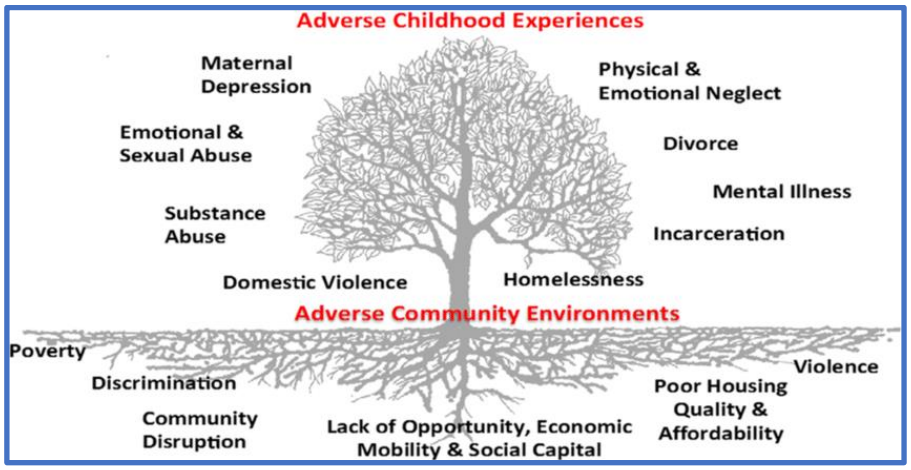


Figure 2: The Pair of ACES

Figure 2: Ellis, W.& Dietz, W. (2017a). A New Framework for Addressing Adverse Childhood and Community Experiences: The Building Community Resilience (BCR) Model. Academic Pediatrics, 17 (2017) pp S86-S93. DOI information: 10.1016/j.acap.2016.12.011

2.3.3 Adverse Childhood Experiences – South African Perspectives

South Africa is a country that has deep roots in trauma (Williams et al., 2007), and according to Human Rights Watch (2001), South Africa has been reported to be a leader in rape statistics worldwide. Previous literature reviews report a high incidence of robbery, assault and murder, with crime rates increasingly on the rise. The country's history of apartheid accounts for high rates of political violence, interpersonal violence, and life-threatening experiences like traffic accidents, sexual assault, child abuse and hijackings. Many South Africans have been exposed to one or more traumatic experiences (Williams et al., 2007). Many people in South Africa resort to violence as their chosen strategy for dealing with conflict and unmet expectations. Interpersonal violence, which includes acts of intimate partner violence (IPV), family violence, child abuse, and homicide – South Africa has a homicide rate seven times higher than the global average – all contribute towards a population who are at a higher risk of ACE (Norman et al., 2010). This, in turn, places the population at a greater risk for

exposure to HIV/AIDS, panic disorders, major depression, addiction, self-harm, sexually transmitted diseases, post-traumatic stress disorder, and cervical cancer for females (Norman et al., 2010).

A study by Voith et al. (2020) aimed to establish how trauma symptoms experienced due to adverse childhood experiences affect intimate partner violence (IPV) and victimisation among racial/ethnic minority men so that interventions could be developed to reduce the perpetuation of IPV. They hypothesised that men with higher ACE scores, would reflect high IPV frequency and severity. The results showed that men with higher ACE scores were more likely to report a higher frequency of IPV perpetration and victimisation (physical and psychological). They were also more likely to report psychological aggression, physical assault and injury (Voith et al., 2020).

2.3.4 Theoretical Framework

Bronfenbrenner (1977) viewed childhood development as a complex system of interactions within various relationships, and each of these impact the environment of the child. He divided the environments into different levels and included family, school, and surrounding cultural relationships. To understand how adverse childhood experiences impact children, we need to view their interactions within each system level. Bronfenbrenner identified five systems: the microsystem, mesosystem, exosystem, macrosystem and chronosystem. This theory will be used as the theoretical framework to understand how children form part of the system and how the system impacts them in the form of adverse childhood experiences. It is important to factor in the interrelationships within the different systems – home, parents, schooling, teachers, and the larger community – so that interventions can be instituted which

include all the systems. Evidence-based research suggests that interventions established at a system level are more successful at addressing the behavioural effects of ACE (Guy-Evans, 2020).

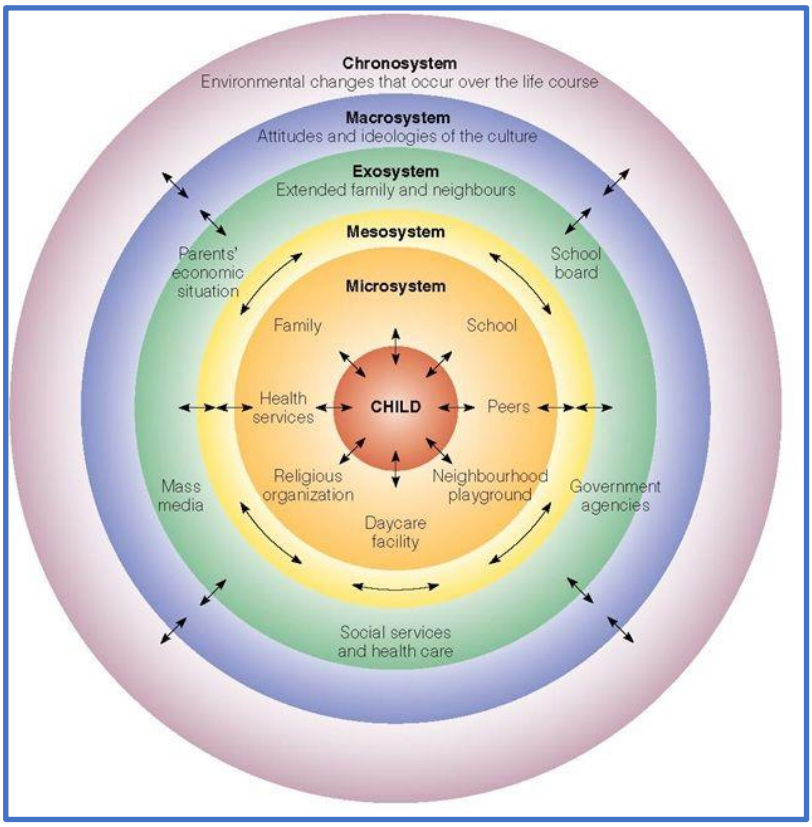


Figure 3: Bronfenbrenner's Ecological Systems Theory (Guy-Evans, 2020)

2.4 Strategies and Interventions for addressing behavioural effects of ACE

As mentioned, individuals exposed to adverse childhood experiences or traumatic events can present with various pathologies throughout their lifecycles. Children subjected to interpersonal and community violence, complex forms of trauma, and toxic stress might demonstrate strong physiological responses that present when the body is subjected to extreme stress. These can continue long after the traumatic event has taken place. Early exposure to interpersonal violence within their microsystem and mesosystem increases an individual's risk of developing depression, substance use, and becoming a perpetrator of future IPV (Edwards et al., 2003). Future behavioural, emotional, academic and psychological problems can result

(Buckner et al., 2009). The mental health challenges that result from traumatic experiences can create long-term problems for families, schools and communities, which impacts every system (Betancourt et al., 2017).

2.4.1 Evidence-based trauma-informed treatments

Spencer et al. (2022) performed a systematic review of previous systematic reviews. They state that most of the interventions aimed at treating adverse childhood experiences aim to improve the mental resilience of the individual using either a clinical or a counselling approach. Most interventions utilised to treat adverse childhood experiences embrace a trauma-informed care approach. Trauma-informed means that the prevalence of ACEs and previous trauma is recognised; that behaviour, as presented, can be a direct result of traumatic experiences. To help people overcome their previous traumatic experiences, they need to be treated with respect and kindness to help empower them with alternatives, choices or options (Khan, 2020).

The principles of trauma-informed care as stipulated by Substance Abuse and Mental Health Services Administration (2014) are:

- Encourage awareness and understanding of trauma;
- Trauma experienced by individuals must be considered in the context of their environment;
- The caregiver should provide a safe environment for the individual;
- The primary goal of care is recovery from the trauma;
- Re-traumatisation or reliving the previous trauma should be minimised;
- Individuals should be taught that they are in control and have autonomy and choices;

- The individual should be encouraged to participate in and foster relationships which encourage collaboration;
- Socialise trauma-informed services so that others are aware of them;
- Routine trauma screening should be done regularly;
- Trauma should be viewed through a sociocultural lens;
- Resilience is encouraged in individuals by focusing on their strengths;
- Trauma-resistant skills should be taught to all individuals;
- Secondary trauma may come up and needs to be addressed;
- Promoting self-care, hope, and recovery to individuals is important.

In this paper, the interventions were identified as fitting within four approaches:- family-based, school-based, institution-led, and individual-focused.

Table 1: Overview of approaches to treating ACEs

Approach	Intervention Name	Setting
Family-based	• Child Maltreatment Programme • ABC intervention • PCIT Intervention • CPP • SAAF • For Baby's Sake • Incredible Years • Triple P • SafeCare • Parenting for Lifelong Health (PLH)	Home Clinic Schools University Community

Institution led	• MATCH-ADTC • Hope for Children and Families	Clinic Community
School-based	• C-BITS • Modular Trauma-Informed Intervention • SSERSD • PATHS	School Community
Individual focused	• IPV (incorporates DBT, TF-CBT, and mindfulness) • JoyPop App • EMDR • MBSR • CBT • SFBT • Forgiveness Therapy	Clinic Home Prisons Community

2.4.2 Family-based & Parent-based Intervention Programmes

Hughes et al. (2017) state that early intervention using collaborative, trauma-informed services can support individuals and families in addressing previous adverse experiences. An example of this is through maternity and home visiting services which can aid in strengthening parenting skills and screen individuals for risk factors. Proper screening of an individual, such as history taking, can help medical and psychological professionals to provide better trauma-informed solutions, interventions and treatments to counteract the behavioural effects of ACE. Resilience programmes can be implemented in schools, universities and in the workforce

environment for adults to teach coping skills, build emotional maturity, and increase awareness of the possible risk of developing long-term health risks. This could teach individuals how to counteract and prevent them from happening.

Thompson & Kaufman (2019) found similar results in their Child Maltreatment Prevention Programs study. They found that interventions aimed at parenting strategies, incorporating home visitation programmes with multiple targets of treatments and community interventions were the most common. Still they found that only a few that they tested showed efficacy. They tested the Attachment and Biobehavioral Catch-up (ABC) intervention, which includes 10 home-based sessions centred around the infants and toddlers in a household and aims to change the parent's behaviours towards the child and enhance the attachment between them. Originally, the programme was for parents referred to child protective services, but the programme was later adapted to include foster parents (Thompson & Kaufman, 2019).

The Parent-Child Interaction Therapy (PCIT) intervention is a 12-session clinic-based treatment programme targeted at preschool children with behavioural disorders who have been physically abused by their parents. The dyadic programme aims to improve parent-child interaction using direct parent coaching. The parent is observed interacting with the child via a one-way mirror, and the parent has a bug-in-the-ear device which allows the therapist to speak directly to the parent, utilising coaching strategies that need to be employed while the parent interacts with their child (Thompson & Kaufman, 2019).

Child-Parent Psychotherapy (CPP) is one intervention that significantly improves mothers' distress and their parenting skills. The programme is designed as a 50-session clinic-based intervention and runs from birth to five years of age. It supports mothers affected by traumatic events and/or domestic violence. The intervention aims to understand the impact of the mother's trauma on the relationship with the child and help her by using a psychodynamic

approach, to improve the attachment between mother and baby. Teaching social learning techniques and some cognitive behavioural techniques improves the child's safety and well-being and reduces the risk of returning to foster care (Thompson & Kaufman, 2019).

The Strong African American Families (SAAF) intervention, aimed at 11-year-olds, focuses on forming future goals, offering emotional support, teaching emotional resilience, efficacy skills and adaptive behaviours to utilise when encountering racism (Thompson & Kaufman, 2019).

Domoney et al. (2019) designed an intervention which includes the whole family system, namely *For Baby's Sake* which aims to reduce and break cycles of domestic abuse and traumatic experiences in childhood. Forty participants were included in their study – 27 women and 13 men – and the programme was designed using a trauma-informed approach to improve mental health within the family setting and prevent the further intergenerational transmission of developmental trauma and domestic and childhood abuse. Interventions that address domestic abuse are often directed at either the victims or the perpetrators, but few aim to provide interventions for the entire family; those that do, focus on school-going aged children or specifically on the mother and child (Domoney et al., 2019). By providing an intervention that works with the entire family and includes the micro, meso, exo and macro system, the perpetrator must accept responsibility and accountability for their actions, and the consequences of those actions. *For Baby's Sake* is an evidence-based intervention used to break the cycle of domestic abuse together with other parenting interventions. Such interventions intend to work on the mental health of infants and improve attachments between the infant and the parent. Trauma support for the parents is also provided because many individuals have experienced their own childhood traumas and domestic abuse, which continues to impact them as adults. The trauma-informed intervention helps to build self-regulation, teaches parents how to break their destructive behavioural patterns, empowers parents to learn valuable life skills

with regards to parenting, reduces stress in the family dynamic and supports their children to create secure and healthy attachment styles (Domoney et al., 2019). The programme includes cognitive behavioural therapy (Beck, 2011), Berne's work on Transactional Analysis (Berne, 2016), the Gestalt techniques proposed by Kellogg (2014), mindfulness activities taken from the work of Whitaker et al. (2014), and Inner Child work established in the work of Bradshaw (1992).

Additionally, the Brazelton Newborn Behavioural Observation tool is utilised (Nugent, 2015), plus Video Interaction Guidance (Kennedy et al., 2011) and lastly, systemic practice in the Motivational Interviewing techniques by Rollnick & Miller (1995). The key components of the programme lie in the inner child work, which assists the parents in working with their current feelings, thought patterns and behaviours, and understanding how their past adverse childhood experiences and exposure to trauma impact their parenting styles. The programme helps the parents to understand their triggers, build internal resilience and learn how to be a "good enough' parent to their child (Domoney et al., 2019).

Incredible Years (IY) is a universal intervention which has shown great efficacy in treating ACEs. The intervention is aimed at parents of children aged 0-12 years, and the programme aims to promote emotional and social competence and treat the behavioural effects of ACE. An analysis of IY found that 68% of the children reduced their conduct disorder score, child problem behaviour was reduced, and foster carers showed an improvement in their depression levels. Parent management skills were also improved (Sahle et al., 2020).

Parenting for Lifelong Health (PLH) was developed in South Africa to address the lack of evidence-based parenting interventions to reduce violence against children and enhance the well-being of disadvantaged families (FCW, 2018). The intervention uses social learning behavioural change techniques to enable individuals to use role-play therapy to model positive

parenting skills. The programme was piloted in three South African communities, Klapmuts, Franschhoek and Mitchells Plain. The programme results showed that there was an improvement in parenting practices and an overall reduction in substance abuse in adolescents and caregivers of the families that participated (WHO, 2018).

2.4.3 Institution-Based Interventions

Chorpita and Weisz (2009) developed an intervention system using one protocol, the Modular Approach to Therapy for Children with Anxiety, Depression, Trauma and Conduct (MATCH-ADTC). It uses treatment procedures called elements and treatment logic called coordination to assist children who struggle with anxiety, depression, trauma and conduct disorder. The system aims to teach professionals to run specific modules for children and adolescents in their normal day-to-day practice. Evidence-based algorithms are used to tailor treatments run by a clinician who is a MATCH-ADTC expert guide. A web-based system is utilised to monitor progress and continuously adapt the therapy until the problem has been resolved.

MATCH-ADTC has been evaluated in a randomised controlled trial, and the results reflect that it was significantly more effective than normal care, or single-focused usual care (Lucassen et al., 2015). MATCH-ADTC was designed to treat disruptive behaviour, symptoms resulting from trauma, anxiety and depression, and is designed to cater to fluctuating symptoms that may present during the therapy session. Children between the ages of 7-14 were used in this study, and all participants were required to speak English. Participants were excluded if they had received a primary diagnosis of ADHD, intellectual disability, psychosis, autism, or an eating disorder. They were also excluded if they were acutely suicidal or had a sibling who had previously participated in the study. The MATCH-ADTC programme involves 33 treatments, with a manual to support each module which assists the fully accredited expert, in

running the sessions. The goals for therapy are defined up front, with the full participation of the family (Lucassen et al., 2015).

Child and Family Training (C&FT) developed an approach called Hope for Children and Families, which aims to promote the health, well-being and development of children, adolescents and their families by using evidence-based resources to overcome difficulties (Bentovim et al., 2018). With the assistance of the Department of Health (2000) *Framework for the Assessment of Children in Need and their Families*, and using modules of the MATCH-ADTC programme, they developed an intervention guide for clinicians to use to address traumatic and co-morbid responses to multiple ACEs. They developed a seven-stage model that assesses, analyses, plans and reviews various interventions aimed at a child's well-being.

The model stages include:-

- Engagement and goal setting;
- Modifying abusive and neglectful parenting;
- Promoting children and young people's health, development and wellbeing;
- Promoting attachment, attuned responsiveness and positive emotional relationships;
- Promoting positive parenting;
- Working with families;
- Working with child sexual abuse;
- Working with children and young people: Addressing disruptive behaviour;
- Working with children and young people: Addressing emotional and traumatic responses. (Bentovim et al., 2018)

Each child's developmental needs are considered, the family and environmental factors are taken into account, and the parenting capacity is included in the training to ensure that the child's welfare is promoted and safeguarded (Bentovim et al., 2018).

The Murdoch Children's Research Institute (Sahle et al., 2020) conducted a study to reach a consensus about interventions that would effectively prevent ACEs and reduce the negative consequences on the mental health of individuals. The study concluded that a range of interventions has been developed and that preventing or reducing exposure to ACEs could result in a 30% reduction of common mental health disorders, including depression, anxiety, suicidality and post-traumatic stress. Their results identified 26 interventions, including one based on psychological therapy, two school-based, and three economic-based. Another three were community-based, eight were related to home visitation programmes, and nine were centred on parenting programmes (Betancourt et al., 2015). The results varied depending on the intervention and are discussed in Chapter 4.

2.4.4 School-based interventions

Traumatic events frequently leave the victim with hyper-arousal symptoms, episodes of dissociation, somatic symptoms, and dysregulation symptoms like anxiety and depression, which can directly impact a child's academic performance and ability to interact in a social environment (Mancini, 2019). The effects of trauma can have long-term behavioural effects that can lead to chronic physical, psychological and emotional dysregulation, which impacts every dimension of a child's life. This can significantly affect an individual's health and ability to function in society every day, particularly in school (Mancini, 2019). Children spend considerable time in school, highlighting the importance of how beneficial it can be to utilise their time spent there, addressing the effects of adverse childhood experiences.

Children exposed to adverse childhood experiences need to learn how to regulate their emotions, calm their bodies, and begin to understand how to integrate a balance between brain

and body (Mancini, 2019). By utilising the extensive time that children spend in school as an opportunity to provide low-threshold, ie. easily accessible, not requiring high change readiness, school-based mental health services and interventions, the heavy burden on the community and family system can be reduced. Simultaneously an effective way of reaching at-risk youth is offered by engaging them in positive, uplifting and self-esteem-boosting opportunities that will improve their academic performance and their emotional and physical well-being. This will allow them to become more emotionally regulated, and encourage them to participate in further interventions which will help them to deal with the behavioural effects of adverse experiences.

It can decrease barriers and resistance to participating in treatment, improve academic performance, and improve children's psychosocial functioning. It will also reduce the risk of criminal activities in the community, dangerous antisocial-type pastimes, and any other dysfunctional behaviour (Mancini, 2019). Cognitive-Behavioural Intervention for Trauma in Schools (C-BITS) was also found to help students manage their traumatic symptoms. The intervention includes psychoeducation, skills development to manage symptoms, discussions, writing and drawing, all of which involve revisiting the trauma through imaginal exposure and in vivo techniques to help desensitise the individual. This process requires a properly trained professional, a high level of commitment from the individual, and engagement during the sessions. It requires a language level of understanding that might not be easy for children who have not learnt how to regulate their emotions (Mancini, 2019).

Bentovim, Gray, and Pizzey (2018) believe that a treatment plan can be developed to reduce the impacts of ACE by using a *Modular, Trauma–Informed approach to intervention*, which can be custom-fitted to the needs of the patient and their family. Bellis et al. (2018) reported that when schools taught teachers about adverse childhood experiences, and they adopted ACE-informed approaches when working with students who have been exposed to an

ACE, attendance rates increased, educational attainment was improved, and exclusions in the school were reduced.

Many studies verbalise increasing community resilience in both individuals and in the community because it has been proposed to be a factor in counteracting the negative impacts of ACE; as the systems interact and influence each other. Unfortunately, data to support this remains minimal, and few mention how to develop resilience skills in individuals. Bellis et al. (2018) speak of building resilience in children by encouraging them to have someone to look up to, a mentor or a role model, and to develop supportive friendships. Being offered opportunities to build resilience, develop their networking opportunities, understand the impacts of ACE and provide them with trauma-informed support from teachers, whilst incorporating parental support where possible, have all been connected to reducing the long-term risks of ACE (Bellis et al., 2018).

2.4.4.1 School-based intervention: Somatic Soothing and Emotional Regulation Skill Development Intervention (SSERSD)

Mancini (2019) studied 24 youths who had experienced numerous stressors, including displacement, war, migration, resettlement, interpersonal violence and neglect. Results reported a high score on measures indicating post-traumatic stress disorder, anxiety, psychiatric symptoms and depression. The research study tested whether a somatic intervention could positively impact on the participants. Somatic interventions generally incorporate physical activity, which teaches children to self-soothe so they can begin to regulate their emotions. It prepares them to engage in further language-based interventions to help them overcome the behavioural effects of ACE.

Children can thrive academically and in all other aspects of their lives when they are taught how to regulate their emotions. The Somatic Soothing and Emotional Regulation Skill Development Intervention (SSERSD) was developed as a school-based, trauma-informed intervention that aims to reduce the effects and intensity of the somatic and physiological traumatic symptoms (including emotional dysregulation, hyperarousal and dissociation) and enables individuals to develop self-regulation skills (Mancini, 2019).

The SSERSD Intervention was founded using principles from sensory diet activities (Wilbarger, 1984), Sensory Motor Arousal Regulation Treatment (Warner et al., 2011), Sensorimotor Psychotherapy (Ogden et al., 2006) and Impact Basics (Rosenblum & Taska, 2014) and also has strong roots in yoga and mindfulness training. Somatic interventions can easily be used in schools with limited resources, and are successful at teaching children relaxation exercises, mindfulness, deep breathing to calm the nervous system, how to feel safe, how to make good choices, and how to recognise small successes and celebrate them.

Autonomy and children's safety must be maintained whilst conducting the SSERSD intervention, and therapists should identify specific areas in each individual which may require extra attention and address these accordingly. The interventions focus on emotional responses that occur when the body is placed under stress or trauma and autonomic processes that regulate the physical and emotional body connection. Eight sessions are conducted over a four-week period, two sessions per week. Mancini (2019) proposed that the following activities be included:

1. Relaxation and movement strategies – which include squeezing or rolling a large exercise ball, deep breathing exercises, stretching or warrior breathing, all used to address behavioural difficulties;

2. Creating space and boundaries – these exercises are designed to help children understand their personal space, boundaries, and how their bodies belong to them. A rope is used to demarcate space around each child so that they can visualise their own personal space or zone. When the therapist tries to "invade" their personal space, the child is taught how to push the object (balls / toys etc) out of their space and maintain their own safe boundaries;
3. Body and somatic resources – This helps children manage during stressful times by using movement like yoga, deep breathing, hugging oneself, stretching and heart-rate monitoring, all of which help the child connect with their body;
4. Grounding resources – These are useful to help children who struggle with dissociation symptoms and are taught by helping children play stuck in the mud or using a form of tapping which helps get the child present;
5. Releasing activities – Ball-based activities are used where the child plays soccer with very large balls or completes squeezing exercises;
6. Somatic resource movements help children to identify how the emotion manifests in the body (drooped shoulders, sad face etc.) and how to use your body to counteract the feelings (stand up straight, smile, laugh, shake it out, etc.).

Using somatic interventions can help individuals learn how to deal with feelings of numbing, dissociation and hypervigilance, which often results from experiencing traumatic incidents. Children included in this study were required to have experienced at least one traumatic incident and had to be exhibiting behavioural difficulties or showing some form of academic difficulty. Children who exhibited troublesome, disruptive behaviours, or were exhibiting signs of difficulties in class, were referred by teachers to participate in the intervention.

Language interpretation was utilised where required, and upon completion of a comprehensive mental health assessment, and baseline assessments of trauma, psychological impairment and depressive symptoms, the intervention was conducted during school hours by three licensed social workers and a counsellor trained in the SSERSD intervention. Symptoms of PTSD, depression, anxiety and psychological functioning were measured pre-and post-intervention. The teachers were also asked to respond to changes they had observed in each child. The results of this intervention showed that implementation of mental health services in school environments could be an effective and efficient means of providing care to children with behavioural difficulties as a result of having experienced ACE (Mancini, 2019).

2.4.4.2 School-based intervention: Promoting Alternative Thinking Strategies

Di Lemma et al. (2019) reviewed the intervention developed by Greenberg et al. (1998) called Promoting Alternative THinking Strategies (PATHS) programme, which is aimed at helping children who struggle with problem behaviours, to promote their levels of self-control, improve their social and emotional abilities, increase their emotional literacy, and motivate them to participate in society in a healthy manner. Greenberg et al. (1998) found that developing an individual's ability to have empathy for others, insight into their own life, and being able to foster healthy relationships, reduces the risk of depression, violence, and aggression, and promotes success in every aspect of an individual's life (Greenberg et al., 2004).

The PATHS programme is split into age/level appropriate lessons, focusing on the five conceptual domains: interpersonal problem-solving skills, emotional understanding, self-control, building positive self-esteem, and developing healthy relationships. PATHS has been

researched and is evidence-based, with children who attend regular schooling, and others who may be considered as special needs, including deaf, hearing-impaired, those with learning disabilities, emotional problems, those who experience mental deficiencies, and those who are classified as gifted children (Di Lemma et al., 2019).

2.4.5 Individual-focused Interventions

There are interventions aimed specifically at treating the individual independently and don't include group or family sessions. These sessions normally occur with only the therapist and the individual working together, over numerous therapy sessions. Individual therapy sessions can be utilised for adult or for children patients, but the format of the therapy will need to be tailored based on the individual's age. Play therapy is more suitable to help a child make sense of trauma or dysfunctional family dynamics. In contrast, an adult can engage with therapy that utilises a structured process and engages with the individual on a higher cognitive functioning level.

2.4.5.1 Intimate Partner Violence (IPV) Intervention Programmes (Community)

Children exposed to intimate partner violence are more at risk for developing the common symptoms associated with exposure to early childhood adversity. Mindfulness interventions which treat self-efficacy can assist in reducing the psychological perpetration, frequency and severity of IPV victimisation in individuals who perpetrate intimate partner violence (Voith et al., 2018). Adaptation of programmes that incorporated dialectical behaviour therapy (DBT), acceptance and commitment therapy (ACT) (mindfulness-based therapy), and trauma-focused cognitive behavioural therapy (TF-CBT) show efficacy in reducing IPV perpetration. Mindfulness self-efficacy can be used as an effective intervention to serve as a

protective factor in individuals who have experienced ACEs to help them reduce their propensity to display violence towards their partners (Crane & Easton, 2017).

2.4.5.2 Smartphone app-based Intervention

The JoyPop app is a smartphone app that was launched to promote resilience in individuals that had experienced adverse childhood experiences (MacIsaac et al., 2021). The app aims to improve emotional regulation and executive functioning in users. It targeted first-year undergraduate students who are often exposed to high-stress levels while at university. It was developed in an app-based format because so many people now have access to smartphones. It was thought that receiving in-the-moment support could help university students develop resilience that could help them overcome the adversities of university life. They were requested to use the app at least twice daily for four weeks.

The app measured depression levels, executive functioning, resilience and emotional regulation after two weeks of usage and again after four weeks. The app included features like the Rate My Mood feature, which highlighted the individual's mood and focused attention on whether they were feeling positive or negative at that moment. Breathing exercises were another feature of the app that helped the individual decrease their physiological arousal and support themselves through self-regulation. A journal feature was included in the app because expressive writing during journaling has shown long-term health benefits, and this exercise helps to foster self-regulation. A game called SquareMoves was included in the app to encourage a mental state of flow, which helps app users to change their focus from a negative- to a positive self-view. The app also included an art feature to encourage creativity and doodling, which allows for healthy expression.

Additionally, the app encourages users to establish a circle of trust network with other users, or support structures, where the person can access helplines, or victim services, should they need further support (MacIsaac et al., 2021). One hundred and fifty six participants with a mean age of 19.02 years old, used the app on 20.43 days out of the 28 days that were measured. The results indicated an improvement in emotional regulation, and depression symptoms (MacIsaac et al., 2021).

2.4.5.3 Lifestyle Medicine Interventions

Spencer et al. (2022) performed a systematic review of interventions treating ACE's effects. They reviewed various programmes, including parenting education programmes and eye movement desensitization and reprocessing (EMDR) techniques for treating ACE, which is a form of therapy where the patient is briefly exposed to emotionally disturbing stimuli while simultaneously focusing on an external stimulus. The rationale for EMDR is that it enables the patient to access the traumatic experience in their memory network. While doing so, the memory is attached to a more adaptive memory or relevant information (Spencer et al., 2022).

They reviewed mindfulness-based stress reduction (MBSR), an eight-week intensive programme that teaches individuals to deal with depression, anxiety, stress and pain symptoms. The programme includes yoga, mindfulness, meditation, body awareness, and an element of cognitive activity related to the patients thinking, feelings, behaviour and actions (Spencer, 2022).

The findings confirmed that cognitive behavioural therapy (CBT) shows the most efficacy in treating ACE and that solution-focused brief therapy (SFBT) showed significant efficacy in helping the client to find solutions rather than remain focused on their past

experiences. They also indicate that SFBT showed promise with children and when used in family contexts, but note that more research is needed (Spencer et al., 2022).

Spencer et al. (2022) state that researchers are finding increasing evidence that there may be a medical component for the adverse biological changes in a person's body after having experienced adverse childhood experiences. Studies show that an inflammatory process may be responsible for these changes, which arise from an increase in the patient's systemic inflammatory markers (C-reactive protein, pro-inflammatory cytokines and fibrinogen). They state that it is well known in the medical profession that increased inflammation in an individual's body increases their susceptibility to chronic disease and a reduced lifespan (Spencer et al., 2022).

They found that when the patient utilised positive protective lifestyle factors, which include a healthy diet, plenty of good sleep and rest, and spending time outdoors, there is potential to reduce inflammation in the body, which reduces the person's risk of chronic conditions. Positive and protective lifestyle factors can ensure that the individual is able to prevent or delay further disease, and helps to promote a healthier lifestyle for those who have been impacted by ACE. They believe that using a combined approach (addressing body, mind and spirit) may prove to be the most effective way to combat the negative effects of ACE (Spencer et al., 2022).

2.4.5.4 Forgiveness Therapy

Song et al. (2021) researched childhood trauma and found that people treated unjustly suffered from excessive anger. They found that forgiveness therapy could have a beneficial impact on reducing unhealthy anger, particularly with individuals who may be incarcerated

or homeless due to the various traumas they have experienced. This therapy can help individuals overcome the psychological compromise, like strong resentment, anxiety and clinical depression. They found that individuals who suffer from unhealthy or toxic anger are more at risk of developing anxiety, depression, personality disorders and bipolar disorders. They also found that trauma victims generally showed a high level of irritability which is linked to suicide attempts and suicide completion in adolescence (Song et al., 2021).

The psychology of forgiveness therapy is that deep-seated anger, resentment, depression, and anxiety can result from a primary, distal traumatic event which took place in the past but has not been properly treated, hence the continuing psychological distress. The therapy aims to assist the individual to forgive the perpetrator and learn how to offer goodness to the offending person, which helps reduce their resentment. As a result of reduced resentment, the secondary symptoms of depression, anxiety, hopelessness and low self-esteem abate, and the resentment and the toxic anger are reduced (Enright & Fitzgibbons, 2015).

2.5 Conclusion

The original ACE study was done in 1998 by Felitti and colleagues, and measured the correlation between exposure to adverse childhood experiences and the risk of developing long-term health problems. Considerable research has been done on the impacts of ACE, but this review aimed to evaluate the strategies and interventions that treat the behavioural effects of ACE. There are different ways of treating individuals who have been exposed to ACE. Common approaches include treating the person either individually within a therapeutic relationship, at school, in the community, or at specific clinics that use structured interventions to treat the behavioural effects of ACE.

There is also new research that shows that there are neuro-developmental impacts on individuals who have been exposed to ACE. Treating ACE within the South African context requires a tailored approach because the population has been exposed to high levels of violence, crime, and rape. It will require an intervention that considers the many different forms of trauma that may have occurred. Suggestions to practitioners would be to ensure that it is imperative that trauma-informed care be utilised, which means ensuring that what is best for the individual is factored in when considering which setting might be suitable.

The theoretical framework of Bronfenbrenner (1977) encourages us to utilise a systems perspective when treating ACE, as it is imperative that all the contributing systems are reviewed and treated according to the impact they have played in the individual's life, and how trauma has contributed to their symptoms. Practitioners must also ensure that re-traumatisation is appropriately managed when treating ACE. The settings considered may play a vital role in preventing further harm to the individual.

Other factors to consider when choosing the settings for an intervention include culture, resources available and the availability of trained professionals to run the intervention. Some interventions can be performed in a brief time period. Still, others have been suggested to take place over numerous sessions., This is another factor that will seriously impact the efficacy of the intervention and the help and supportt the individual can receive.

In the following chapter 3, the methodology of how this scoping review was conducted is detailed according to the appropriate process that was followed, and the results and further discussion chapter follow in Chapter 4.

Chapter 3 Methodology Chapter

3.1 Introduction

This chapter addresses the methodology that was used to perform this research. It explains the process that was followed to perform the study and concludes with a look at the ethical considerations. This scoping review maintained the recommended requirements of a scoping review, which includes transparency, rigidity and objectivity as understood by Mays (2016), which explains that the process should be systematically detailed to ensure validity and reliability.

3.2 Aims

The aim of this study is to map the current literature on evidence-based interventions and strategies for addressing the behavioural effects of adverse childhood experiences (ACE).

3.3 Objectives of the study

- To explore existing evidence on the availability of evidence-based interventions and strategies for addressing behavioural effects of adverse childhood experiences (ACE);
- To explore research studies that have evaluated interventions that are focused on specifically addressing the behavioural effects of adverse childhood experiences in individuals, globally and within the South African context;
- To identify gaps in the literature regarding evidence-based interventions that target behavioural effects of ACE.

3.4 Research design and approach

Methodological Design: Scoping Review

Arksey and O'Malley (2005) designed a framework using a methodological approach to conduct scoping reviews. A scoping review is a literature review that focuses on reviewing literature which has not received attention previously or when there is significant research on a specific topic and a summary is required. They provided a framework for conducting a scoping review (Arksey & O'Malley, 2005). Scoping reviews have become popular for researchers to study health-related research evidence (Levac et al., 2010). It should be noted that they are different to systematic reviews in that the authors do not normally assess the quality of the studies they are including. They require analytical reinterpretation of the existing literature (Levac et al., 2010).

A scoping review is undertaken to review and understand the nature of a specific topic; to understand the research activities related to the topic; to evaluate the value of conducting a full systematic review; to understand the extent and range of the literature; to summarise and propagate research findings; and to identify any gaps in the literature. A scoping review effectively clarifies specific concepts and refines research explorations (Levac et al., 2010). Arksey and O'Malley (2005) designed a six-step framework that should be used when conducting scoping reviews. Step 1 entails identifying the research question. In step 2, relevant studies are identified. Step 3 clarifies the study selection. Step 4 is to chart the data. Step 5 requires the collation, summarising and reporting of the results and the last step, Step 6, is an optional step, consultation**.**

Step 1: Identifying the research question

One always begins a scoping review by clarifying the research question. Levac et al. (2010) allude to the research question as the roadmap for all the subsequent stages of the

process. They indicate that the question must be clearly defined, as this can have ramifications when implementing the search strategies**.**

The research question for this scoping review is: *What are the evidence-based interventions and strategies for addressing the behavioural effects of adverse childhood experiences?*

The aims and objectives would be to review existing literature on the evidence-based interventions and strategies that have addressed the behavioural effects of ACE and to identify any gaps in the literature as it relates to the South African context. The research question includes the population, interventions which are included, context, setting, different perspectives to be considered and the design elements related to the research (Arksey & O'Malley, 2005)**.**

Step 2: Identifying the relevant studies

Arksey and O'Malley (2005) provided a clear strategy for conducting scoping reviews. They indicated that a search of all "electronic databases, reference lists, hand-searching key journals and searching existing networks, relevant organisations and conferences" should be done. It should include all published and unpublished literature on the subject.

This study will consider all literature that is proven to be evidence-based and reports on successful interventions and strategies that address the behavioural effects of ACE. For the purpose of this study, databases will be searched to identify the relevant literature studies.

The *inclusion* criteria for this scoping review are:

- Quantitative, qualitative, mixed study designs and scoping reviews;
- Evidence-based interventions;

- Only English articles will be considered;
- Literature mentioning childhood or adult interventions as it relates to adverse childhood experiences, including sexual, physical, mental and emotional abuse;

The *exclusion* criteria for this scoping review are:

- Articles which are not in English;
- Articles which review interventions that are not evidence-based;
- Articles which refer predominantly to polyvictimisation.
- Articles using a meta-analyses approach;
- Articles which refer to ACE as being neglect.

For the purposes of this study, and as advised by a supervising reviewer, neglect and maltreatment as it relates to adverse childhood experiences in the South African context, which was initially included, has been excluded, as it was anticipated that that would extend the scope of this dissertation to that of a doctorate level, and that would require resources that are beyond its current scope.

The following search terms were initially tested using Boolean search terms in order to obtain a preliminary search strategy yield related to this current study:

(adverse childhood experiences OR ACE) AND (interventions and strategies for adverse childhood experiences*) AND (child abuse*) AND (childhood adversity*) AND (treatment or intervention or therapy*) OR (psychological intervention*)*

Table 2. Key Search Words using PCC elements

Population	Concepts	Context
All	Adverse childhood experiences / ACE	ACE

South African	Interventions and strategies for ACE	Trauma
	Literature mentioning traumatic and non-traumatic experiences	
	Literature mentioning Childhood intervention as it relates to ACE	
	Literature mentioning adult interventions as it relates to ACE	
	Literature mentioning sexual abuse as it relates to ACE	
	Literature mentioning emotional abuse specifically as it relates to ACE	

Step 3: Selection of Studies

Tricco et al. (2018) designed the PRISMA-ScR (Preferred Reporting Items for Systematic reviews and Meta-analyses extension for Scoping Reviews) which is a checklist that contains 20 essential reporting items and two optional items which should be included in all scoping reviews. A PRISMA-ScR flow diagram is shown below (Figure 4), and this process will be utilised in this scoping review.

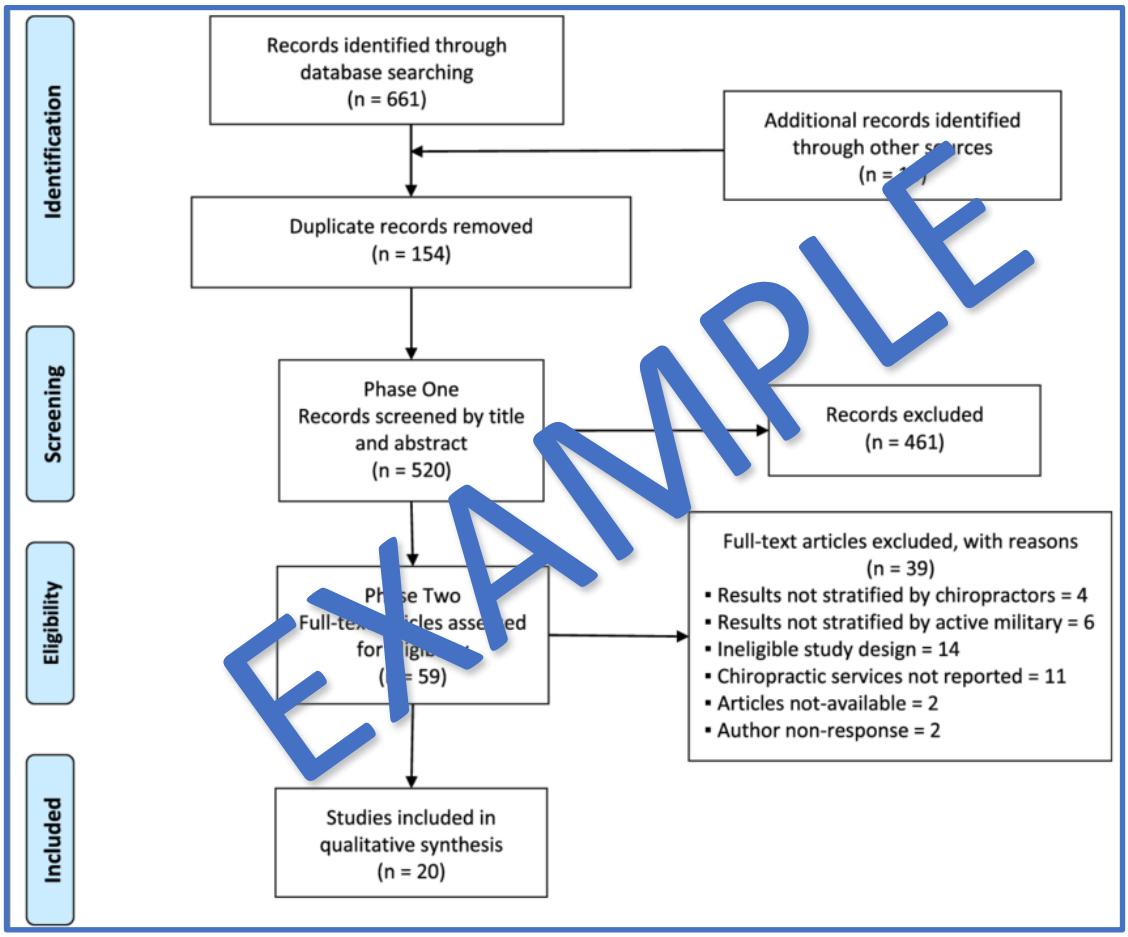


Figure 4: Example of Preferred Reporting Items for Systematic Reviews Meta-Analyses-ScR (PRISMA-ScR extension for Scoping Reviews) flow diagram for the scoping review process (Tricco et al., 2018).

Step 4: Charting the data

Arksey and O'Malley (2005) included charting in their framework and described it as the process of interpreting and synthesising data by arranging them into identified themes. Charting the data in this review is guided by a narrative review approach. Students use narrative reviews as a general approach to identify studies that share a specific problem that the student is interested in (Demiris et al., 2019). There are four steps to conducting a narrative review:

Step 1: Conduct a search

Published scientific literature is available to be accessed through a variety of libraries and databases. It is important to search different databases to ensure that all the relevant studies

are identified. Common databases normally used include PsycInfo, PubMed or MedLine (Demiris et al., 2019).

Step 2: Identify keywords

Using keywords to search for the specific topic makes the process easier, as most authors will mention the keywords they have included in their literature (Demiris et al., 2019).

Step 3: Review Abstracts and Articles

Once the relevant literature has been identified using the keywords in the title and as mentioned by the authors, remove all the duplicates and review the abstracts and the remaining articles (Demiris et al., 2019).

Step 4: Document the results

Once step 3 is completed, the literature can be summarised, and the thematic analysis of the themes identified can be commenced in more detail (Demiris et al., 2019).

In this study, the themes will be charted by author(s), location, aims and objectives of the study, interventions, strategies, and the results of the studies conducted.

Table 3.

Charting of data using a narrative review (Demiris et al., 2019)

Author(s)
Year
Aims and Objectives
Interventions utilized
Strategies utilized
Results of the studies

Step 5: Collating, summarising, and reporting the results

The final stage in the Arksey and O'Malley framework (2005) is to collate all the results and report back on the themes identified. For this study, a thematic analysis will be used to analyse the existing literature. Graphs and tables will also be included where appropriate to illustrate the findings. Braun and Clarke (2006) designed a six-step approach to be utilised when conducting thematic analysis. They believe that using this form of analysis should be an introductory means for qualitative analysis as it provides core competencies required for analysis. It can be used across numerous research questions and a range of epistemologies (Lorelli et al., 2017)**.**

The six steps of thematic analysis are detailed below:

Step 1: Familiarisation

This entails getting to know the data by obtaining a thorough overview before analysis can begin. It includes the transcription process, reading through the text and becoming familiar with the data (Lorelli et al., 2017)**.**

Step: 2 Coding

Coding means allocating specific phrases or even full sentences to a code which can be used later to identify themes. This can be done by using specific shorthand or unique labels or codes that accurately encapsulate and describe the data (Lorelli et al., 2017)**.**

Step 3: Generating themes

Once patterns have been identified (as in step 2), themes are assigned. Themes are broader than codes and combine several codes (Lorelli et al., 2017).

Step 4: Reviewing themes

It is important to ensure that the themes are useful and accurate, which is done by comparing the themes to the original interviews. A review can be done, and corrections made where necessary (Lorelli et al., 2017)**.**

Step 5: Defining and Naming themes

To define a theme means to formulate what is meant by that theme so that it is easy to understand. Naming the theme makes it easier to understand (Lorelli et al., 2017)**.**

Step 6: Writing up

When writing up the themes, first formulate an introduction which will establish the research question, the aims, and the approach the thematic analysis will take. The section where detail is provided on how the data were collected is included in the methodology section, and the results and findings address each specific theme identified (Braun & Clarke, 2006).

Thematic analysis is useful when the researcher wants to explore people's views, opinions, knowledge, experiences, and values on a specific topic. The thematic analysis allows flexibility in interpreting data and easy sorting into broad themes. The disadvantages are that it can be subjective and relies heavily on the researcher's judgement. There are different approaches to doing thematic analysis - inductive and deductive.

If the data determines the themes, this is called an inductive approach. If the researcher starts the analysis with some preconceived themes that they may expect to find based on existing knowledge about the topic, this is called a deductive approach. A researcher can also choose between using a semantic or latent approach. The semantic approach means that the researcher analyses the explicit content. The latent approach entails reading into the subtext and assumptions that can be made during analysis of the data (Caulfield, 2020).

It is important for qualitative researchers to conduct data analysis in a manner that ensures precision and consistency. Recording all the data, systematising the themes, and disclosing the methods of analysis allow the reader to determine whether the process was credible (Lorelli et al., 2017).

3.5 Search Strategy

Studies relating to adverse childhood experiences have been shared in many journals that can be accessed via a professional library. The literature in this scoping review was found in psychology, nursing, medicine, and psychiatry journals. Multiple online databases were searched to ensure that the subject was comprehensively researched, including Academic Search Complete, MEDLINE, and APA PsycInfo One article was found through BMC Psychiatry during cross-checking. All were accessed via Ebscohost, made available through the University of KwaZulu Natal online library. Only literature written in English was included, and articles were only included if they were published between 2012 and 2022, excluding the original ACE study done by Felitti et al. (1998). The database search was completed in July 2022.

Table 4:

Search strategies and yields for the electronic databases that were searched (Date accessed 01/02 July 2022)

Database	Search Strategy	Yield	Total relevant to study

Academic Search Complete (Ebscohost)	(adverse childhood experiences OR ACE*) AND (interventions and strategies for adverse childhood experiences*) AND (child abuse*) AND (childhood adversity*) AND (treatment or intervention or therapy*) AND (psychological intervention*)	3696	127
APA PsycINFO (Ebscohost)	(adverse childhood experiences OR ACE*) AND (interventions and strategies for adverse childhood experiences*) AND (child abuse*) AND (childhood adversity*) AND (treatment or intervention or therapy*) AND (psychological intervention*)	944	112
MEDLINE	(adverse childhood experiences OR ACE*) AND (interventions and strategies for adverse childhood experiences*) AND (child abuse*) AND (childhood adversity*) AND (treatment or intervention or therapy*) AND (psychological intervention*)	2238	135

Health Source: Nursing/Academic Edition	(adverse childhood experiences OR ACE*) AND (interventions and strategies for adverse childhood experiences*) AND (child abuse*) AND (childhood adversity*) AND (treatment or intervention or therapy*) AND (psychological intervention*)	558	132
TOTAL YIELD		6684	506

3.6 Inclusion and Exclusion Criteria

Table 5 depicts the inclusion and exclusion criteria that were used for this scoping review in terms of the study design, population, concept, context, language, and time period.

Table 5:

Inclusion and Exclusion criteria of literature researched

Criteria	Inclusion Criteria	Exclusion Criteria
Study Design	Quantitative, qualitative, mixed methods, and scoping reviews	-
Population	All individuals who have experienced an ACE; with particular attention on South Africans who have experienced ACE	References to Polyvictimisation
Concept	Adverse childhood experiences / ACE; Interventions and strategies for ACE;	Adult related adverse experiences that have no

	Literature mentioning traumatic and non-traumatic experiences; Literature mentioning childhood intervention as it relates to ACE; Literature mentioning adult interventions as it relates to ACE; Literature mentioning sexual abuse as it relates to ACE; Literature mentioning emotional abuse specifically as it relates to ACE	direct relation to childhood. Maltreatment. Neglect
Context	ACE; trauma	Adverse experiences during adulthood Polyvictimisation
Language	Only English articles are included	Articles written in any other language other than English
Time Period	Full text, PDF, peer-reviewed articles published between 2012 and 2022, other than articles related to the original ACE study	Studies published before 2012

3.7 Selection of Studies

To select relevant articles, the titles and abstracts were read and analysed using the search strategy and keywords that were applied. They were cross checked against the inclusion and exclusion criteria.

The articles that were selected as meeting the criteria were then reviewed by full text. Further elimination processes were applied if the full text articles did not meet the full search strategy criteria. The Preferred Reporting Items for Systematic Reviews and Meta- Analyses-ScR (PRISMA-ScR) flow diagram below (Figure 5) depicts the reviewing phases that were utilised while identifying and eliminating articles for the scoping review.

Search results were exported to Excel, and duplicates were automatically identified and removed. Two independent reviewers (AC and AS) completed the screening process by reviewing all titles and abstracts. Thereafter, full paper screening of literature that was eligible was conducted. Differences of opinion, disagreements and any uncertainties were discussed in a Zoom meeting to ensure there was no possibility of error, omission, or bias.

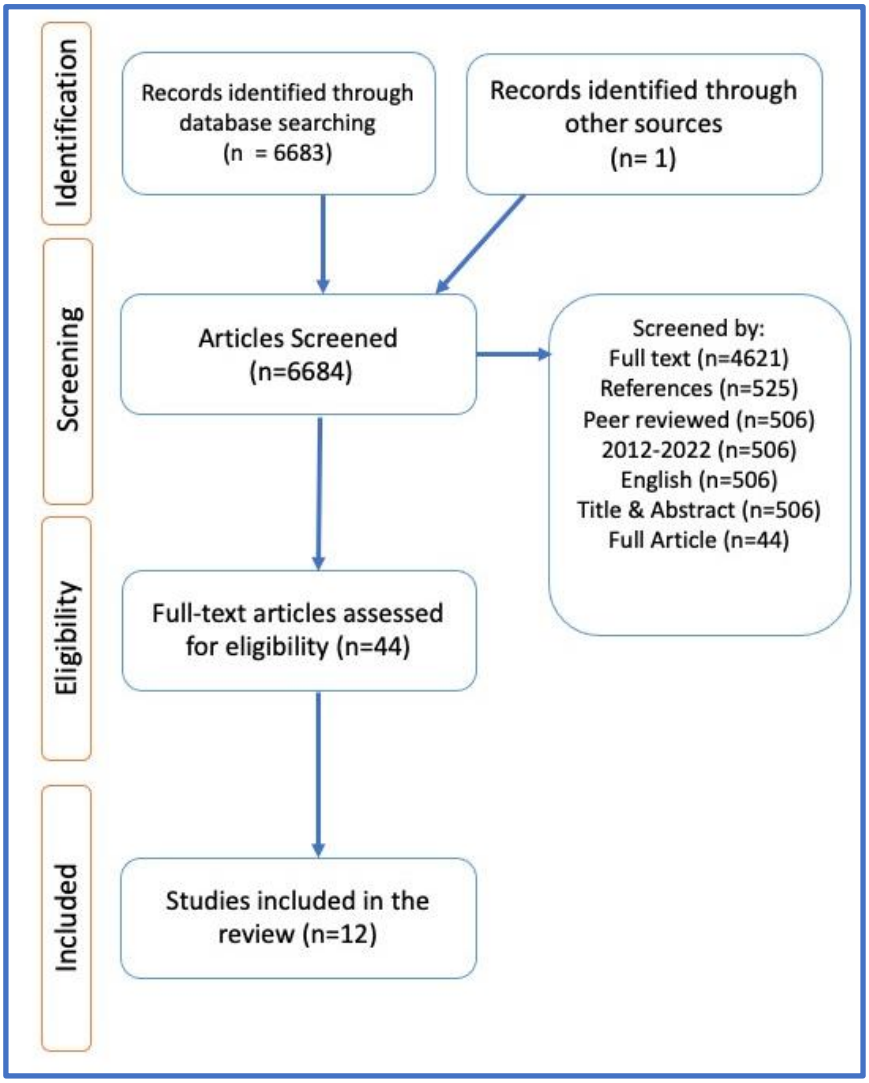


Figure 5: PRISMA-ScR flow diagram (Tricco et al., 2018) for the Scoping review on interventions and strategies for Addressing Behavioural Effects of Adverse Childhood Experiences

Figure 5 is a PRISMA-ScR flow diagram depicting that 6684 articles were identified on the initial screening attempt, using the selected databases and keyword search criteria. The articles were then screened according to further search criteria, including full PDF, peer-reviewed articles, dates were checked, references provided, and 6159 articles were excluded. Thereafter full title and an abstract screening of 525 articles was conducted, and 506 were excluded as the articles did not meet the full criteria. The full text, PDF, and peer-reviewed articles amounted to 44, and they were assessed for eligibility.

Reasons for exclusion included the fact that no interventions were mentioned. Many articles referred to how resilience in an individual could overcome the behavioural effects of ACE but did not detail how to build resilience. The articles also lacked information about the kinds of resilience and did not mention specific interventions which developed resilience in participants. One article was excluded because it focused on interventions to treat traumatic experiences experienced during adulthood but never specifically mentioned ACE or the behavioural effects of experiencing an ACE. One specific article was excluded due to being specifically aligned to child maltreatment, which was listed in the exclusion criteria because it would have increased the scope of this research study to a doctorate level. A final total of 12 articles were selected to be included in the final scoping review.

3.8 Charting the data

The data was charted according to step 4 of the Arksey and O'Malley (2005) framework, while using the narrative review approach as proposed by Demiris et al., (2019). The results

section of the scoping review will include all the relevant information that was extracted and is charted in a separate table.

3.9 Credibility, transferability, dependability, and confirmability

When reviewing qualitative literature, it is important to filter the information through different lenses to ensure credibility, transferability, dependability, and confirmability (Forero et al., 2018). All literature reviewed in this scoping review will be tested for:

3.9.1 Credibility

Literature must establish confidence that the results are true, valid, and credible and that the intervention, as described, was successful.

3.9.2 Dependability

The literature screened must show that if the intervention is repeated elsewhere, the intervention will still be successful, within the same criteria of participants, or similar.

3.9.3 Confirmability

Literature should show that other researchers have been able to confirm the results

3.9.4 Transferability

Literature should show the degree to which the results can be transferred to other contexts or settings.

3.9.5 Rigor

Levac & Colleagues (2010) discussed the need for rigor whilst doing a scoping review.

They indicated that it is necessary that the inclusion and exclusion criteria need to be incorporated in the initial phase of the process, and the search strategy should begin with titles and then abstracts, and their last recommendation was that the examination of the final selected literature, should be reviewed by a minimum of two independent researchers at the beginning, middle and final phase to ensure objectivity of articles selected. In this scoping review, the process was conducted by the researcher and another student, AS, who provided the objective review.

3.10 Ethical issues in the research process

Because this study was conducted as a scoping review, the ethical issues are less intense than in traditional research. No human participants were included in this study, it is a review of previous literature. The principles of autonomy, justice and beneficence do not need to be applied due to the lack of human participants. Data collection is conducted by the researcher using previous literature, and there is no requirement to store confidential information from participants. No person will be exposed to acts that diminish them, nor will any human be exposed to questions which are upsetting or stressful. No form of deception at all will be used in the research process.

No forms; questionnaires; survey schedules; or interviews will take place at all; and no psychometric testing or equivalent assessments will be conducted. There are no human participants, so the autonomy of individuals is completely protected, and no one needs to provide consent to participate. No permission is required from gatekeepers to conduct a scoping review. The research data is collected using a scoping review, and data will be stored, with a password, with the researcher who is the person responsible for this research project.

3.11 Conclusion

Chapter 3 discussed the procedure and research methodology which was employed to conduct this scoping review. Data were analysed using a thematic and narrative approach and grouped according to themes which will be discussed in the results chapter. Issues of credibility, dependability, transferability and confirmability were discussed, as well as the ethical issues that needed to be considered. The next chapter will discuss the key findings found during the analysis of the literature.

Chapter 4: Results & Discussion

4.1 Introduction

In 1998, Felitti and colleagues established the prevalence of adverse childhood experiences. Then they correlated that data with information about the participant's health and risk of developing long-term illness or being more susceptible to substance abuse. Their research showed that the more ACE an individual had been exposed to, their risk of developing long-term health difficulties increased, smoking, ischemic strokes, alcohol abuse and propensity for violence also increased. Since that research was released and the awareness of the consequences of exposure to ACE increased, there has been a growing need to develop interventions and strategies to reduce the risks to individuals impacted by ACE (Bentovim et al., 2018).

The research on the repercussions of ACE far outweighs the research on interventions and strategies that can be used to address the behavioural effects of the trauma that the individuals have experienced. The costs of ACEs are monumental to the victim and to society. Therefore, mental health professionals must equip themselves with evidence-based strategies that have proven efficacy in helping traumatised individuals to heal from ACE, develop better coping strategies, increase their resilience, and learn emotional regulation to reduce the high costs to society associated with mental illness.

This present study aimed to map and synthesize the studies that have previously investigated the evidence-based interventions and strategies that combat the behavioural effects of adverse childhood experiences. The objectives of this study were to:

- explore existing evidence on the availability of evidence-based interventions and strategies for addressing behavioural effects of adverse childhood experiences (ACE);

- explore the categories of adverse childhood experiences (ACE);
- explore research studies that have evaluated interventions that are focused on specifically addressing behavioural effects of adverse childhood experiences in individuals globally and within the South African context;
- identify gaps in the literature regarding evidence-based interventions that target the behavioural effects of ACE.

This was done by conducting a scoping review of previous research already conducted in this field of study.

This chapter focuses on study findings and discusses results collected from various databases. The study findings will be discussed and portrayed in tables relating to frequency. Additionally, findings were presented as prominent themes and subthemes identified and developed through thematic content analysis.

The themes that were identified indicated that interventions aimed at treating the behavioural effects of ACEs are generally categorised according to the setting that they take place in, whether that be within a school environment, within the community, or takes place with the individual in a setting where psychotherapy can take place. A smartphone app was utilised and included, considering the degree to which technology is being introduced into teletherapy. The interventions identified that have shown efficacy in treating ACEs varied from TF-CBT, EMDR, Mindfulness interventions, Somatic interventions, group therapy, or family therapy. A theme identified across all the interventions is the need for trauma-focused care to be a pivotal element of the treatment.

The results section details the relevant research that was reviewed using a descriptive and narrative approach. The discussion section details the themes identified in the research reviewed, the efficacy of the interventions, details regarding their population, and the context

of the study. Braun & Clarke (2006) recommend using a thematic analysis to review the content of your study, and this approach has been utilised in the discussion section.

4.2 Results

Table 6

Charting of the extracted data

Article Title	Author	Aims and Objectives	Interventions utilized	Strategies Utilized	Results of the studies
1. A pilot study evaluating a school-based, trauma-focused intervention for immigrant and refugee youth.	Mancini	This pilot study examined the effectiveness of a school-based somatic soothing intervention designed to help children manage	SSERSD is a novel, school-based, trauma-informed intervention.	SSERSD - Somatic Soothing and Emotional Regulation Skill Development Intervention that incorporates physical activities and other somatic elements to enhance self-regulation and soothing skills and reduce somatic trauma symptoms such as hypervigilance, numbing,	Participants reported statistically significant improvement in anxiety, depression, psychological functioning, and trauma symptomology post-intervention with

		dissociative and deregulatory symptoms.		dissociation and emotional dysregulation	medium academic functioning and social interaction for most participants.
2. Adverse childhood experiences and building resilience with the JoyPop app: Evaluation study.	MacIsaac; Mushquash; Mohammed; Grassia; Smith; Wekerle;	This study evaluates the impact of an innovative, smartphone app–based resilience intervention. The JoyPop app was designed to promote resilience using self-	JoyPop App	Rate my Mood feature Breathing Exercises Journaling Flow activities Art Feature for creativity Circle of Trust activity Call for Help	App usage was associated with improvements in emotion regulation; symptoms of were reduced by .08 points on the 9-point scale with each additional day of app usage. An interaction between ACEs and days of app usage existed for

		regulatory skills such as emotion regulation and executive functioning			emotion regulation, such that participants with more adversity evidenced a faster rate of change in emotion regulation.
3. Adverse childhood experiences, trauma symptoms, mindfulness, and intimate partner violence: Therapeutic	Voith; Russell; Lee; Anderson.	Investigate if ACE, PTSD, and severe complex trauma symptomology are significantly associated with the frequency and severity of IPV perpetration and victimization	Mindfulness batterer intervention programme (BIP), and ACT	Mindfulness, emotional regulation, self-efficacy, equanimity, social skills, distress tolerance, responsibility taking, interpersonal effectiveness	The results indicated that higher mindfulness scores predicted decreased rates of self-reported psychological aggression, perpetration, and victimization. Higher mindfulness scores decreased the odds of self-reported severe

implications for marginalized men.		among a sample of predominantly low socioeconomic status men of colour			psychological aggression perpetration
4. For Baby's Sake: Intervention Development and Evaluation Design of a Whole-Family Perinatal Intervention to Break the	Domoney; Fulton; Stanley; McIntyre; Heslin; Byford; Bick; Ramchandani; MacMillan; Howard;	Aims to (1) summarise the process of developing: For Baby's Sake and how it has been embedded within two different settings and (2) describe the	For Baby's Sake	The programme integrates a range of therapeutic techniques to support behaviour change and recovery from trauma, including CBT, TA, Gestalt techniques, mindfulness, and systemic practice in Motivational Interviewing. The Inner Child work is at the therapeutic core of the programme in enabling parents to come to terms with	The experiences highlight that it is possible to implement a whole-family domestic abuse intervention within community settings, and to work intensively with mothers and fathers with the aim of improving outcomes for children

Cycle of Domestic Abuse.	Trevillion;	evaluation design using early data to illustrate successes and challenges.		their adverse childhood experiences and recover from trauma.	living with domestic abuse.
5. Modular Approach to Therapy for Anxiety, Depression, Trauma, or Conduct Problems in outpatient child and adolescent mental health	Lucassen; Stasiak; Crengle; Weisz; Frampton; Bearman; Ugueto; Herren; Cribb-Su; Faleafa; Kingi-'Ulu'ave;	The Modular Approach to Therapy for Children with Anxiety, Depression, Trauma, or Conduct Problems	MATCH-ADTC	MATCH-ADTC 33 modules, specific treatment procedures, family therapy, worksheets, homework, caregiver handouts, Brief Problem Monitor, Top Problem Assessment,	A clinical trial of MATCH-ADTC in the USA showed that MATCH-ADTC outperformed usual care and standard evidence-based treatment on several clinical measures. We aim to replicate these findings and evaluate the impact of providing

services in New Zealand: study protocol for a randomized controlled trial	Loy; Scott; Hartdegen; Merry				training and supervision in MATCH-ADTC to: (1) improve clinical outcomes for youth attending mental health services; (2) increase the amount of evidence-based therapy content; (3) increase the efficiency of service delivery.
6. Prevention, Intervention, and Policy Strategies to	Thompson; Kaufman;	This report concludes new strategies and approaches to	Triple P; SEEK; Early Head Start; Healthy Families America; Nurse-	Attachment and Biobehavioral Catch-up (ABC); Trauma-Focused Cognitive Behavioral Therapy (TF-CBT);	Each intervention has different outcomes; reduce PTSD; depression; acting out;

Reduce the Individual and Societal Costs Associated with Adverse Childhood Experiences (ACEs) for Children in Baltimore City		move the needle to positive change.	Family Partnership; Strong Communities for Children;	Parent Child Interaction Therapy (PCIT); Child Parent Psychotherapy (CPP)	increase peer support; reduce trauma symptoms; increase parent-child attachment; improve self-regulation and self-reflection;
7. Summary of interventions to prevent ACE experiences and reduce the	Sahle; Reavley; Morgan; Yap; Rupert;	Review interventions targeting ACE that reduce occurrences of ACE, reduce the	26 interventions reviewed, 9 parenting, 8 home visitation, 3 community-wide, 3	Strong Communities; Sure Start; Homebuilders; Triple P; GPMTO; Incredible Years; SafeCare; Parents Under Pressure; Tuning Into Kids; Circle of Security Parenting	Varied results per programme; improved efficacy, child health and safety and parenting practices; improvements

negative impact on children's mental health: An evidence-based review	Loftus; Jorm	impact on mental health;	economic, 2 school-based, 1 psychological therapy	Intervention; Parent-Child Interaction therapy; Adults and Children Together against Violence; Chicago Child-Parent Centre for Preschool Program; Community Child Health Nurse Home Visiting Program; right@home; Healthy Families America; Parents as Teachers; Nurse-Family Partnership; Attachment and Biobehavioral Catch-up; Home Instruction for Parents of Preschool Youngsters; Healthy Start Program; Home-based Early Head Start; Income Supplementation and Maintenance; Housing Assistance; Welfare Reform; Psychological	in social, emotional, and behavioural outcomes; reduction in child abuse; improvement in parent-child relationships; reduction in difficult behaviours;

				Therapies for Children exposed to trauma; School-based Child Sexual Abuse Prevention; School-based Anti-bullying Programs	
8. Therapeutic interventions to reduce the harmful effects of ACE - A modular trans diagnostic, trauma-informed	Bentovim; Gray; Pizzey;	Review the MATCH-ADTC approach to treat ACE	Hope for Children and Families (HfCF) MATCH-ADTC	Hope for Children and Families (HfCF) MATCH-ADTC	Evidence Based; gives youth a stronger voice and tools to use; Generates confidence; Brings meaning to work and leads to effective outcomes; delivers skills and knowledge;
9. The Call for Lifestyle	Spencer; Alramadhan;	Review current literature on	CBT Mindfulness	CBT Mindfulness MBSR	CBT is the most researched and effective

Medicine Interventions to Address the Impact of Adverse Childhood Experiences.	Alabadi; Ribadu;	interventions that treat ACE	MBSR TIC EMDR SFBT	TIC EMDR SFBT	intervention to treat ACE;
10. Trauma and healing in the underserved populations of homelessness and corrections:	Song; Yu; Enright;	To review interventions aimed at addressing anger in the homeless population, and incarcerated population	Forgiveness therapy	Forgiveness therapy	Forgiveness therapy may be an important intervention for assisting those struggling with anger and aiding them to change their life pattern.

Forgiveness Therapy as an added component to intervention.					
11. Trauma informed interventions: A systematic review	Han; Miller; Nkimbeng; Budhathoki; Mikhael; Rivers; Gray; Trimble; Chow; Wilson;	The purpose of this study is to appraise the types, setting, scope, and delivery of trauma interventions and associated outcomes.	Trauma informed interventions. EMDR, CBT;	Trauma informed interventions. Eye Movement Desensitization and Reprocessing, Cognitive Behavioural Therapy;	Trauma informed interventions reduced PTSD symptoms; improvements in anxiety, depression and PTSD were seen; CBT reduced depression, anxiety, emotional dysregulation, interpersonal problems, and risky behaviours

12. Responding to Adverse Childhood Experiences	Di Lemma; Davies; Ford; Hughes; Homolova; Gray; Richardson	An evidence review of interventions to prevent and address adversity across the life course	Reviewed over 100 interventions, covering supportive parenting, building relationships and resilience, early identification of adversity, and responding to ACE and trauma	Parenting interventions; School based; Mentoring interventions; Resilience building interventions; Community based interventions; Early identification; Psycho-therapeutic treatments; specific interventions	Parenting interventions have shown to help children get the best start in life. Interventions that build resilience may prevent ACE. Mentoring interventions have shown improvements in academic success, and relationships. Community interventions build resilience. School based build resilience and promote universal health.

Table 7

Thematic analysis of reviewed articles

Article Title	Author	Code	Explanation
1. A pilot study evaluating a school-based, trauma-focused intervention for immigrant and refugee youth	Mancin	PS1 School1	Pilot Study
2. Adverse childhood experiences and building resilience with the JoyPop app: Evaluation study.	MacIsaac; Mushquash; Mohammed; Grassia; Smith; Wekerle;	ES1 Ind1	Evaluation Study
3. Adverse childhood experiences, trauma symptoms, mindfulness, and intimate partner violence: Therapeutic implications for marginalized men.	Voith; Russell; Lee; Anderson.	ES2 Ind2	Evaluation Study

4. For Baby's Sake: Intervention Development and Evaluation Design of a Whole-Family Perinatal Intervention to Break the Cycle of Domestic Abuse.	Domoney; Fulton; Stanley; McIntyre; Heslin; Byford; Bick; Ramchandani; MacMillan; Howard; Trevillion;	ES3 Fam1	Evaluation Study
5. Modular Approach to Therapy for Anxiety, Depression, Trauma, or Conduct Problems in outpatient child and adolescent mental health services in New Zealand: study protocol for a randomized controlled trial	Lucassen; Stasiak; Crengle; Weisz; Frampton; Bearman; Ugueto; Herren; Cribb-Su; Faleafa; Kingi-'Ulu'ave; Loy; Scott; Hartdegen; Merry	RCT1 Ind3	Randomized controlled trial
6. Prevention, Intervention, and Policy Strategies to Reduce the Individual and Societal Costs Associated with Adverse Childhood Experiences (ACEs) for Children in Baltimore City	E. Thompson; J. Kaufman;	LS1 Ind4/Fam2/Sch2	Landscape Survey

7. Summary of interventions to prevent ACE experiences and reduce the negative impact on children's mental health: An evidence-based review	Sahle; Reavley; Morgan; Yap; Reupert; Loftus; Jorm	SLR1 Ind5/Fam3/Sch3	Systematic Literature review
8. Therapeutic interventions to reduce the harmful effects of ACE - A modular trans diagnostic, trauma-informed approach	Bentovim; Gray; Pizzey;	ES4 Ind6/Fam4/Sch4	Evaluation Study
9. The Call for Lifestyle Medicine Interventions to Address the Impact of Adverse Childhood Experiences.	Spencer; Alramadhan Alabadi; Ribadu;	SLR2 Ind7/Fam5/Sch5	Systematic Literature review
10. Trauma and healing in the underserved populations of homelessness and corrections: Forgiveness Therapy as an added component to intervention.	Song; Yu; Enright;	ES5 Ind8	Evaluation Study
11. Trauma informed interventions: A systematic review	Han; Miller; Nkimbeng; Budhathoki; Mikhael; Rivers;	SLR3 Ind9/Fam6/Sch6	Systematic Literature review

	Gray; Trimble; Chow; Wilson;		
12. Responding to Adverse Childhood Experiences	Di Lemma; Davies; Ford; Hughes; Homolova; Gray; Richardson	SLR4 Ind10/Fam7/Sch7	Systematic Literature Review

Based on the literature search, a total of twelve research papers met the criteria to be included in this scoping review (as depicted in Table 5) based on the inclusion and exclusion criteria outlined in Table 4. The majority of the reviews (n=10) used a qualitative methodological design and reviewed the different interventions (family, school, individual) and their efficacy based on feedback from participants, using either individual interviews with the participants, assessments to measure psychological symptoms, or relied on teacher or parent feedback interviews indicating a change in behaviour. This is depicted in figure 6 below.

Figure 6: Qualitative vs. Quantitative reviews

Six (n=6) reviews targeted a specifically chosen intervention (SSERSD, JoyPop App, BIP & ACT, For Baby's Sake, MATCH ADTC and Forgiveness therapy). The other six (n=6) reviewed the efficacy of various interventions (CBT, EMDR, TF-CBT, Triple P Parenting programme, MBSR, TIC, SFBT, home visitation programmes, PCIT, CPP, SEEK, Healthy families America, Nurse-family partnerships, Strong communities for Children) aimed at addressing the behavioural effects of ACE. This is depicted in figure 7 below.

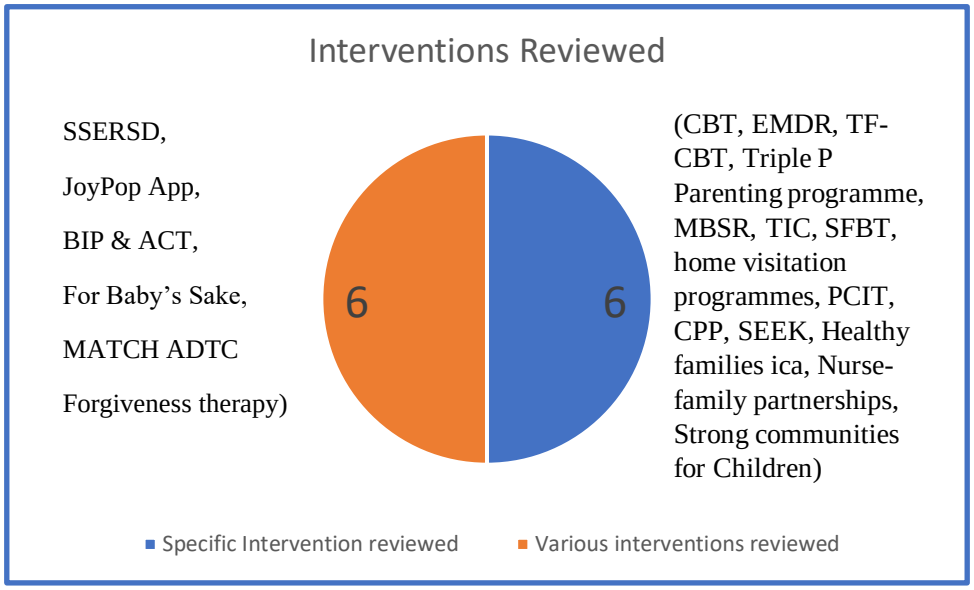


Figure 7: Specific vs. Various Interventions reviewed

The number of literature papers that were eligible to be included, as per date criteria of 2012 to 2022, were published in the following years: 2015 (n=1), 2018 (n=1), 2019 (n=4), 2020 (n=3), 2021 (n=2), and 2022 (n=1). One paper relating to the PATHS intervention was excluded because it was from 2006 but was reviewed in other literature reviews. It was included in the overall evaluation of effective interventions. This is depicted graphically in figure 8 below.

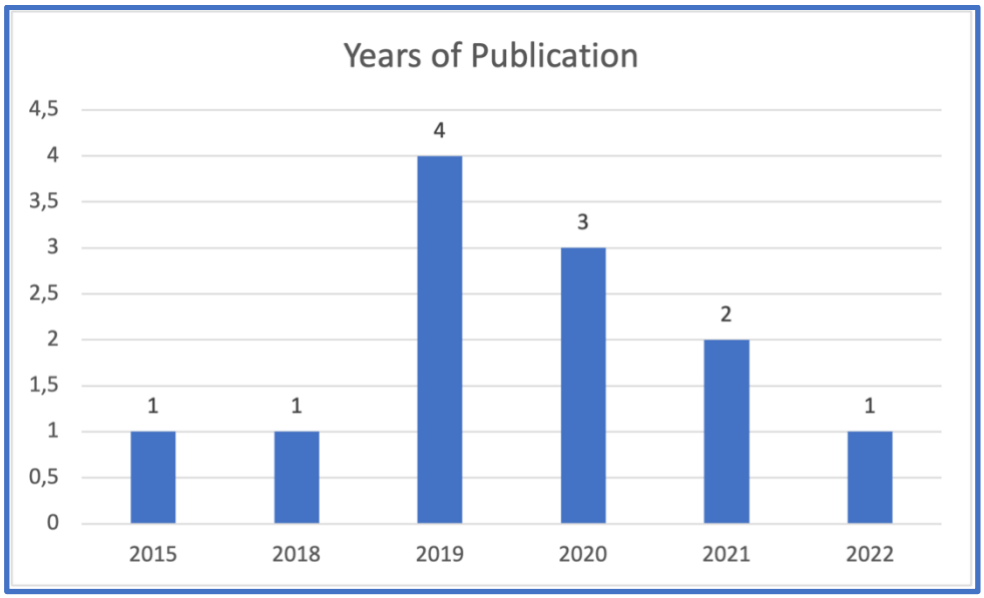


Figure 8: Years of publication

The review format was broken down into pilot study (n=1), evaluation studies (n=5), randomised controlled trial (n=1), landscape study (n=1), and systematic literature review (n=4). This is depicted in figure 9 below.

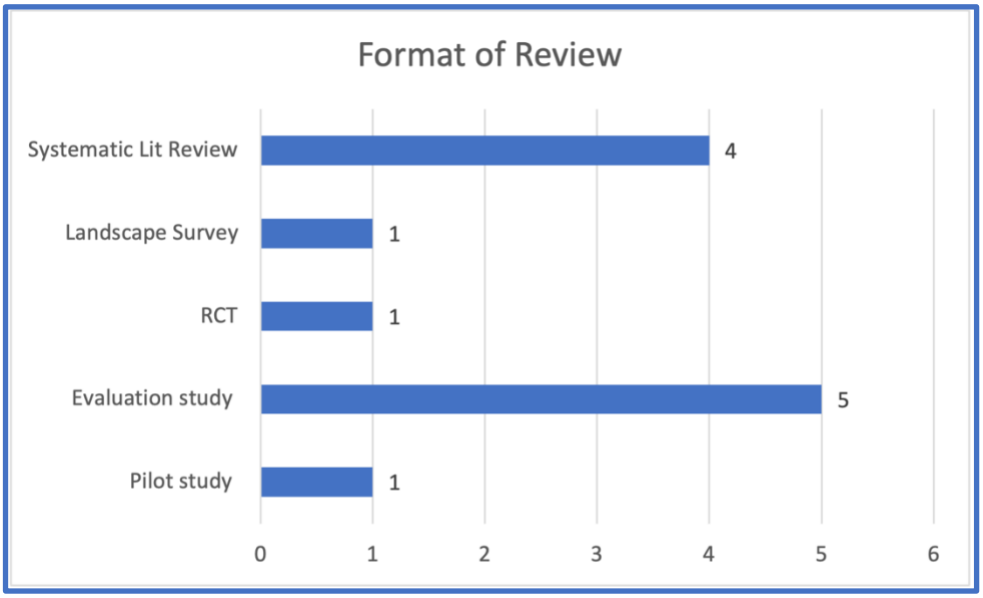


Figure 9: Format of review

Titles, objectives and conceptual definitions of reviewed studies

Most of the literature reviews had similar keywords in their titles, including those identified as keywords in the search criteria. *'Therapy'* was included in four (n=4) of the reviews. *'Trauma'* was mentioned in 6 of the reviews. *'Intervention/s'* was included in nine (n=9) of the titles, and '*Adverse childhood experiences/ (ACE)'* was mentioned in seven (n=7). This is depicted graphically in figure 10 below.

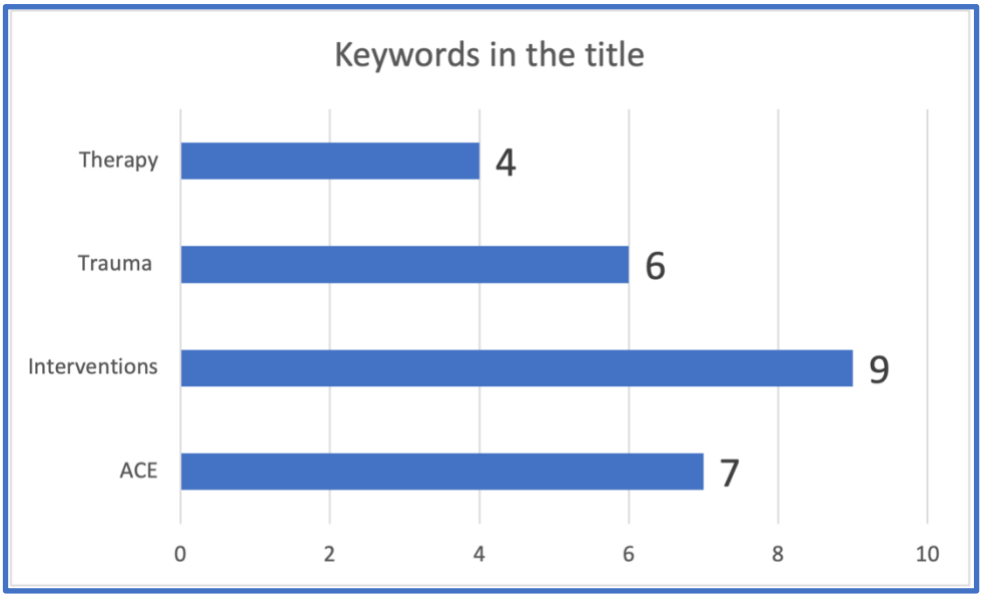


Figure 10: Keywords in the title

In terms of the aims and objectives, the key words used were very similar, one (n=1) paper intended to 'examine the efficacy', three (n=3) aimed to 'evaluate the impact', one (n=1) aimed to 'investigate', one (n=1) aimed to 'illustrate success', five (n=5) aimed to 'review' and one (n=1) aimed to appraise. This is depicted in figure 11 below.

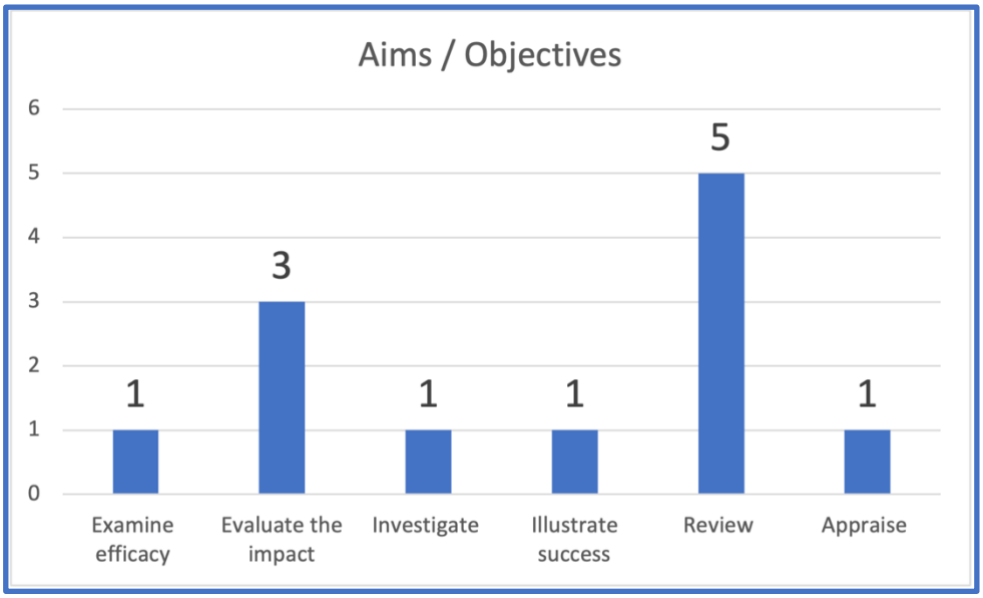


Figure 11: Aims/Objectives

4.3 Themes Identified

4.3.1 Trauma informed treatments

As can be seen from all the assessed interventions, all of them embrace a trauma-informed approach, ensuring that the principles aligned with trauma-informed care are adhered to. Trauma-informed interventions are generally aimed at reducing the symptoms of depression, anxiety, PTSD, or CPTSD, and improving overall functioning and well-being.

The results of the literature reviewed have been synthesised and categorised according to the type of intervention (family, individual-focused, school-based or institution led), following the format of the literature review in this paper.

4.3.2 Family-based and Parent-based Intervention Programmes

Thompson and Kaufman (2019) reviewed various interventions. They found that some participants reported positive findings of interventions aimed at parenting strategies, incorporating home visitation programmes. In contrast, others reported limited and inconsistent evidence on the benefits of interventions to reduce child abuse. It was found that most interventions did not meet rigorous scientific standards for inclusion and that it was unclear who would benefit from some of the programmes. They reviewed the Attachment Biobehavioural Catch-up (ABC) intervention, which aims to change the parent's behaviours towards the child and enhance the attachment between them, and has the longest follow-up. They found that children who participated in the ABC intervention showed improved attachment, behaviour, and stress symptom measures post-treatment. This study result suggests that the ABC intervention improves children's attachment bond to their caregivers, which has long-term benefits on their behaviour, and biological systems. Evidence-based trauma

treatments can reverse the negative health, physiological, behavioural, emotional and social outcomes of early adverse experiences (Thompson & Kaufman, 2019).

They also confirmed that Trauma-Focused Cognitive Behavioural Therapy interventions showed efficacy in improving depressive symptoms and post-traumatic stress disorder (PTSD). These positive outcomes were maintained over time and were reflected in the neuroimaging of the emotion-processing regions of the brain in the study participants (Thompson & Kaufman, 2019).

The Parent-Child Interaction Therapy (PCIT) intervention aims to improve parent-child interaction using direct parent coaching. The programme was effective at reducing the risk of re-abuse, by helping the parent interact better with the child, while significantly reducing the child's disruptive and aggressive behaviour (Thompson & Kaufman, 2019).

Child-Parent Psychotherapy (CPP) showed significant improvement in reducing distress in mothers and improving their parenting skills as it supports mothers who have been affected by traumatic events and/ or domestic violence, and works to improve the attachment between mother and baby. Results showed that the child's safety and well-being is improved, and the risk of returning to foster care was reduced (Thompson & Kaufman, 2019).

The results of the Strong African American Families (SAAF) intervention showed that it provides positive outcomes of increasing emotional support, teaching emotional resilience, increasing efficacy skills and encouraging adaptive behaviours to utilise when encountering racism (Thompson & Kaufman, 2019).

For Baby's Sake helps the parents to understand their triggers, build internal resilience and learn how to be a 'good enough' parent to their child. The results reflect that the programme can help parents who have experienced adverse childhood experiences and traumatic incidents

to appreciate the support offered and to provide beneficial outcomes to families who have participated (Domoney et al., 2019).

Summary of Family and Parent-based Interventions

Positive parenting and family-based interventions benefit individuals, their families, and their communities help to facilitate a reduction in adverse childhood experiences taking place, reduce childhood neglect, and positively impact the cost of ACE on society. Interventions that are implemented early on in an individual's life enable the child to have a better start in life (Gray et al., 2013) and have been proposed as being a key factor in preventing further ACE from taking place (Asmussen et al., 2016). Research shows that the first 1001 days are the most critical time in a child's life, where supportive parenting and protection from stress and adversity is essential (Di Lemma et al., 2019). Interventions aimed at building parental skills, empowering individuals to be better parents, and psychoeducating them about positive attachment, child neglect, and good parenting practices can set the family up for protection from the unwanted negative consequences of adverse childhood experiences.

4.3.3 Institution-based Interventions

The results of the Modular Approach to Therapy for Children with Anxiety, Depression, Trauma and Conduct (MATCH-ADTC) showed that caregivers of youths reported a decrease in the severity of the principal principal problems. In the 24-month follow-up, the caregivers of youths reported a reduction in externalising problems (Chorpita & Weisz, 2009).

Hope for Children and Families, designed by Child and Family Training (C&FT), uses the same modular common element treatments found in the MATCH-ADTC programme. The results show improvement and strengthening of the family's quality, promoting positive parenting, developing secure attachments and general positive development in the family (Bentovim et al., 2018).

The Murdoch Children's Research Institute (Sahle et al., 2020) researched interventions that prevent ACEs and reduce the negative consequences on the mental health of individuals. They found that parenting programmes demonstrated reduced abuse and neglect of children, reduced child abuse, increased parental engagement, short-term improvements in behavioural, social and emotional parenting practices, and reduced emergency room visits or hospitalisation for children. School-based programmes were effective at increasing protective behaviours and reflected increased school completion rates, reduced juvenile delinquency, decreased child problem behaviour and a decline in depression levels in carers fostering a child. A reduction in bullying perpetration and victimisation was noted, as well as the prevention of sexual abuse. However, the programme showed no effect in reducing children's anxiety levels.

Economic intervention reflected some negative results, including increased household substance use, no effect on domestic abuse, household mental illness or the quality of the home environment. Conversely, it did reflect a decrease in household crime of both parents. There is a lack of evidence on welfare reform interventions to reduce ACEs. Psychological therapy interventions showed improved mother-child interaction; specifically by including both parents and children in a joint effort to improve results. In fact, the results reflected a reduced global psychopathology and a reduction in internalising problems in children. Results also showed that providing mental health interventions in schools can decrease barriers to treatment and has increased academic performance and improved psychosocial functioning (Sahle et al., 2020).

Table 8 (below) depicts a summary of the 26 interventions that were identified and reviewed by Sahle et al. (2020) and the level of evidence where they were found to be effective. The study was conducted in Australia, and out of the 26 interventions that were reviewed, the following approaches were most relevant: community-wide, positive parenting, home visits, psychological interventions and school-based interventions (Sahle et al., 2020).

Table 8: Summary of interventions and level of supporting evidence (Sahle et al., 2019)

Intervention	Level of evidence
Community wide interventions	
Strong Communities	**Medium**
Sure Start	**Medium**
Homebuilders (Family Preservation)	**Low**
Parenting Programmes	
Triple P	**Very High**
Generation PMTO (Parent Management Training)	**High**
Incredible Years	**Very High**
SafeCare	**High**
Parents Under Pressure	**High**
Tuning Into Kids	**High**
Circle of Security Parenting Intervention	**High**
Adults and Children Together Against Violence	**Medium**
Chicago Child-Parent Center for Preschool Program	**Medium**
Home Visiting programs	
Community Child Health Nurse Home Visiting Program	**High**
right@home	**High**
Healthy Families America	**High**
Parents as Teachers	**High**
Nurse-Family Partnership	**High**
Attachment and Biobehavioral Catch-up (ABC)	**High**
Home Instruction for Parents of Preschool Youngsters	**Medium**

Healthy Start Program	**Medium**
Home-based Early Head Start	**Medium**
Economic and Social Service Interventions	
Income Supplementation and Maintenance	**Medium**
Housing Assistance	**Medium**
Welfare Reform	**Medium**
Psychological Therapies	
Psychological Therapies for Children Exposed to Trauma	**Medium**
School Based Programs	
School-based Child Sexual Abuse Prevention	**High**
School-based Anti-bullying Programs	**High**

Summary of Institution based interventions

Institution-based interventions merely mean that an institution has spearheaded the research and intervention to target ACE. The benefit of having institution-led interventions is that the institution often funds the associated costs, enabling the community to receive evidence-based interventions at no cost to themselves. Governments (including the USA, Australia, Canada, India and New Zealand) have funded interventions to reduce ACE and its impacts (Di Lemma et al., 2019) and continue to offer resources to support the research. Without institutions that take the time, energy and cost to test and study interventions, we run the risk of interventions being offered to individuals which may not be appropriate and may do more harm than good.

4.3.4 School-based interventions

Research conducted on school-based interventions by Kutash and colleagues (2011) found that when mental health services were offered at school, there was a decrease in daily impairments in general functioning. When trauma-focused cognitive behavioural therapy intervention (TF-CBT) was provided to traumatised Latinx students, they showed reductions in depression and trauma symptoms compared to a control group who did not receive the intervention. Cognitive-Behavioural Intervention for Trauma in Schools (C-BITS), was also found to help students manage their traumatic symptoms (Kataoka et al., 2003).

Bentovim et al. (2018) found that when using a *Modular, Trauma–Informed approach to intervention* in schools, attendance rates increased, educational attainment was improved, and exclusions in the school were reduced.

4.3.4.1 School-based intervention: Somatic Soothing and Emotional Regulation Skill Development Intervention (SSERSD)

Somatic interventions generally incorporate physical activity, which teaches children to self-soothe so that they can begin to regulate their emotions. The Somatic Soothing and Emotional Regulation Skill Development Intervention (SSERSD) was developed as a school-based, trauma-informed intervention to help individuals learn how to deal with feelings of numbing, dissociation and hypervigilance, which often results from experiencing traumatic incidents. Symptoms of PTSD, depression, anxiety and psychological functioning were measured pre-and post-intervention.

The teachers were also asked to respond to changes they had observed. Teachers reported positive changes in 20 out of 27 individuals. Improvements were shown in social interactions in the school, classroom behaviour, academic progress and confidence levels in the participants. Problematic behaviours like hypervigilance and being easily irritated or quick

to anger were reduced. Students became more involved in school work, engaged in class and were better able to interact with the teacher.

Some children did not show improvement, but there was no consensus as to whether that was due to the intervention or external factors. Recommendations received post-intervention centred on improving the communication regarding the intervention, providing more sessions and having the programme run for a full year, rather than its limited time span. The results of this intervention showed that implementing mental health services in school environments could be an effective and efficient means of providing care to children with behavioural difficulties due to having experienced ACE (Mancini, 2019).

4.3.4.2 School-based intervention: Promoting Alternative Thinking Strategies

Di Lemma et al. (2019) reviewed the evidence-based intervention developed by Kusche & Greenberg (2006) called Promoting Alternative THinking Strategies (PATHS) programme, and the results showed:

- Children's level of self-control improved;
- Emotional literacy was increased;
- Tolerance for frustration was increased;
- Conflict resolution skills were improved;
- Thinking and planning skills improve;
- Special needs students showed decreased depression and anxiety symptoms;
- Conduct disorder problems were reduced in special needs students.

Summary of School-based interventions

School-based interventions have proven to be effective at improving academic performance, enhancing general health, and improving an individual's well-being. The research also shows positive feelings towards school are associated with lower traumatic stress symptoms, less depression, and better emotional regulation (Mancini, 2019). Factors to consider would be that if teachers are being utilised to conduct the interventions, they may require extensive training. This can be costly and take considerable time, and another added cost to the school or the community. The benefits of conducting evidence-based interventions in a school environment are that many more individuals can receive the assistance that they need and might not have been able to access due to previously limited resources, inadequate parenting, or transport logistics. Schools are based in almost every community. Therefore this is one of the best ways that interventions can be conducted to ensure that the behavioural effects of ACE can be dealt with, and the ripple effects of the intervention can be felt throughout the communities.

4.4 Individual-focused interventions

4.4.1 Intimate Partner Violence (IPV) Intervention programme (Individual & Community)

Results from the previously mentioned Voith et al. (2018) study established that mindfulness interventions that treat self-efficacy significantly decreased the reports of psychological IPV perpetration and the frequency and severity of victimisation in individuals who perpetrate intimate partner violence. The preliminary evidence showed that an adaptation of programmes that incorporated dialectical behaviour therapy (DBT), acceptance and commitment therapy (mindfulness-based therapy) and trauma-focused cognitive behavioural therapy (TF-CBT), was effective in reducing IPV perpetration. Mindfulness self-efficacy can

be used as an effective intervention to serve as a protective factor in individuals who have experienced ACEs to help them reduce their propensity to display violence towards their partners (Crane & Easton, 2017).

4.4.2 Smartphone app-based Intervention

The JoyPop app is a smartphone app which was tested on students, and the results indicated an improvement in emotional regulation. Depression symptoms were reduced by .08 points on the 9-point scale for every additional day that the user accessed the app. The app also showed that participants who reflected a higher ACE score and used the app more, showed a faster rate of change in their emotional regulation. The intervention established that providing mental health support in the moment can improve emotional regulation and more resilience in times of need. The intervention also confirmed that people who have experienced adverse childhood experiences and who struggle with emotional regulation are able to achieve self-regulation using external support. The results also showed a reduction in depressive symptoms which could be related to the increase in emotional regulation (MacIsaac et al., 2021)

4.4.3 Lifestyle Medicine Interventions

Spencer et al. (2022) performed a systematic review of interventions, and their results showed that parenting education programmes either showed marginal impact on depression and stress or some showed better efficacy, but that the location of the intervention, whether it was clinic-based or home-based, influenced the effectiveness of the programme. They also found that although trauma-informed care was widely used to treat ACE, caution is required to ensure that the problem is being treated in its entirety. It is deemed essential that more randomised control trials are conducted to confirm efficacy (Spencer et al., 2022).

They reviewed mindfulness-based stress reduction (MBSR), and those results revealed that a mindfulness-based approach does show efficacy and seems to improve the physical and emotional health of the individual (Spencer, 2022). Their findings confirmed that cognitive behavioural therapy (CBT) shows the most efficacy in treating ACE but that further research is required to determine the best practices for CBT and the reliability of the results for replication in different settings (Spencer et al., 2022).

They also reviewed solution-focused brief therapy (SFBT). They found that there was significant efficacy for this intervention which focuses on helping the client to find solutions rather than remain focused on their past experiences. They also indicate that SFBT showed promise with children when used in family contexts but note that more research is needed (Spencer et al., 2022).

4.4.4 Forgiveness Therapy

Song et al. (2021) researched forgiveness therapy and found that it could have a beneficial impact on reducing unhealthy anger, particularly with individuals who may be incarcerated or homeless due to the various traumas they have experienced. As a result of reduced resentment, the secondary symptoms of depression, anxiety, hopelessness and low self-esteem abate, and the resentment and the toxic anger are reduced (Enright & Fitzgibbons, 2015).

Summary of Individual-focused Interventions

Interventions always need to take place at an individual level because the person who has been impacted by adverse childhood experiences needs to process what happened to be able to heal. Some interventions are targeted at a community level, whilst others ensure that the individual feels seen and heard and can start their journey to recovery. Individual psychotherapy allows the clinician to personalise the treatment and deal with the individual's

specific traumas and experiences. Each person affected by ACE may present symptoms differently, and their treatment plan would need to be tailored to factor in their presenting symptoms and possible clinical diagnoses. However, focusing on the individual does come with disadvantages. The time and cost of running individual interventions can easily and quickly add up, further burdening on the country and the economy. The practitioner can only deal with one person at a time, which means fewer people can receive the help they need. These are all important factors to consider when deciding which is the best intervention to provide to someone.

4.5 Discussion

This study sought to assess the evidence-based strategies and interventions that treat the behavioural effects of ACE as defined in the research question. A scoping review was conducted on previous literature that has reviewed the topic, and twelve (12) articles were reviewed. The definition used to define ACE in this paper was defined as a set of traumatic stressors that have been experienced by an individual before the age of eighteen and included direct exposure (personal victimisation) and indirect exposure (witnessing or hearing about the victimisation of a family member, friend, or neighbour) to a traumatic event. The different types of victimisation included all forms of abuse (physical, mental, emotional and sexual), neglect (physical and emotional), and household dysfunction (substance abuse, mental illness, interpersonal violence, gender-based violence and incarceration of someone within the household), and can be specified according to whether the ACE took place as a recurrent event, or an individual event (Zuo et al., 2021).

The articles reviewed conceptualised ACE in the same way, all defining ACE as exposure to traumatic events that had taken place during childhood, including physical, mental, emotional and sexual abuse, but excluded articles focused on neglect defined as an ACE due to the scope of this paper. The findings were that interventions had been successfully implemented in different settings, including schools, homes, communities and specific institutions who initiate interventions that treat ACE. Some of the studies (n=6) focused on a specific intervention, while the other (n=6) reviewed different interventions that showed efficacy. The hypothesis was that interventions are available that treat the behavioural effects of ACE, which was supported by the literature reviewed.

The results reflected that it is essential that interventions use a trauma-informed approach and that all interventions should build resilience in individuals as this helps them to overcome childhood adversity and improve their overall functioning. The results of the school-based interventions show efficacy because children spend so much time in school, and the environment allows the teachers to reach children who would not normally have access to the support they need. Teachers confirmed a reduction in problematic behaviours and increased academic engagement and social behaviour. Teachers also confirmed that communication with students had improved and that children showed improved emotional regulation and compassion for others.

Results of school-based interventions point to engagement being essential to the success of the intervention, both from the student's and the teacher’s perspective. Children supported with trauma-informed care within a school environment showed a reduction in depression and anxiety symptoms and a reduction in hypervigilance. All the papers reviewed pointed to the importance of assisting individuals in learning emotional regulation skills as exposure to trauma changes an individual's ability to understand their own and other people’s

emotions. Emotional regulation helps to mediate childhood adversity and mental health difficulties (MacIsaac et al., 2021).

Findings from the papers showed that people who have endured ACE have poorer self-regulatory capacities and that external support, guidance and assistance can help them to learn how to self-regulate and manage their emotional, physical and mental responses better. Findings also confirmed that building and sustaining relationships were a key element in assisting individuals in lowering their depression and anxiety symptoms, and decreasing their suicide ideation or attempts.

There was consistency across all the articles that there is a relationship between exposure to ACE and reduced executive functioning. The higher the individual's ACE score, the lower their executive functioning. The relationship between ACE and higher resilience abilities seems to counteract the inability to use executive functioning (MacIsaac et al., 2021), allowing individuals to improve their academic achievements and maintain better relationships overall.

Parenting and family-based interventions showed consistency across all the articles that exposure to early childhood adversity within a family environment, impacts on the child's ability to form meaningful attachments and develop healthy relationships long term. All the articles agreed on a systematic approach being utilised when working with families, and ensuring that everyone contributing to the family system is included in the intervention. Those who are responsible for abuse within the family are encouraged to take responsibility for their actions and for the behaviour that has resulted from the abuse, and are taught how to parent better, interact with individuals with more empathy, compassion, and understanding, and are helped to manage their own childhood adversity so that they do not allow those experiences to continue to impact on the wellbeing of their families.

Overall, there seems to be consistent evidence that trauma-informed approaches show efficacy in treating the behavioural effects of ACE and that they reduce PTSD symptoms, anxiety, depression and improve emotional regulation and resilience. Although there were limited studies included in this review, the evidence consistently supports trauma-informed interventions as being able to address interpersonal, emotional, behavioural and mental outcomes for individuals and families (Han et al., 2021).

Effective trauma-informed treatments include trauma-focused CBT, EMDR, forgiveness therapy, mindfulness practices, and emotional regulation skills. The TF-CBT interventions show improvements in a wide range of outcomes, including depression, anxiety, interpersonal difficulties, emotional dysregulation, and engaging in risky behaviour. The reviewed articles focused on interpersonal trauma, violence, or gender-based violence as an ACE, but some excluded articles speak of how childhood neglect contributes towards ACE and the behavioural consequences of being exposed to neglect. What was not included was how racism, discrimination and very high rates of violence can directly contribute towards the behavioural effects of ACE. These should always be considered when evaluating a patient and deciding on an appropriate intervention.

Chapter 5: Conclusion, Limitations and Recommendations

5.1 Conclusion

This study aimed to synthesise literature relating to interventions targeting the behavioural effects of adverse childhood experiences. The review highlighted the different approaches to interventions and indicated the efficacy that has been found for each intervention. The review provided an overview of family and parenting-based interventions, school-based, institution-led and individual-focused interventions that have shown efficacy. Throughout the review, it is evident that all the interventions propose that resilience is a key factor in protecting against the consequences of ACE and can be a mitigating factor for preventing further adverse childhood experiences.

Building individual resilience is a common factor throughout all these interventions that aim to reduce the behavioural effects of ACE (Spencer et al., 2022; Hughes et al., 2017); Thompson & Kaufman, 2019; Domoney et al., 2019; Bellis et al., 2018; MacIsaac et al., 2021).

Resilience skills have been identified as a contributing protective factor with individuals afflicted by mental health problems (Bellis et al., 2018), which can present as better academic success, higher school attendance rates and better relationships in an individual's life (Di Lemma et al., 2019). Having healthy relationships with others, participating in extramural or extracurricular activities, and being a part of a community all seem to strengthen an individual's ability to counteract the harmful effects of ACE (Di Lemma et al., 2019). This is depicted well in the Resilience balance scale below.

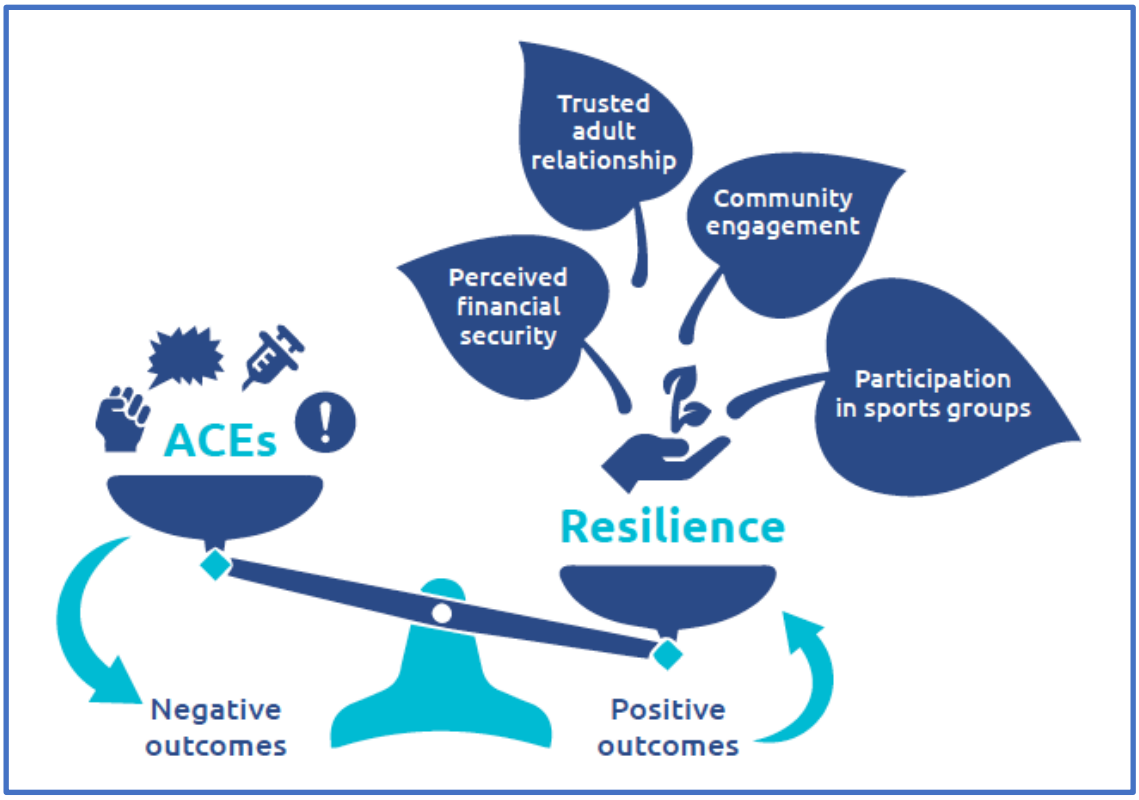


Figure 12: Resilience balance scale (Di Lemma et al., 2019)

Adapted from: Hughes et al. 2018 and Center on the Developing Child, Harvard University, see https://developingchild.harvard.edu/science/key-concepts/resilience/

There were common key themes identified across the interventions regardless of the setting it was administered in, including the need to support an individual dealing with ACE

and enable them to build their own self-identity and confidence. Promoting resilience was mentioned in many of the studies, as already stipulated. Encouraging building healthy and positive relationships were mentioned throughout the different reviews, and many of the interventions targeted helping individuals understand how to build better relationships. Early identification of adverse childhood experiences and adversity was a key theme, as the earlier the intervention is administered, the better the overall results are for the individual.

All interventions mention promoting cognitive and emotional regulation skills and teaching the individual to develop skills and coping strategies that allow and enable them to deal with adversity. All the interventions teach psychoeducation to the individual, parents, family or community so that they can build awareness about the causes, consequences and effects of adverse childhood experiences on individuals, the family and the community.

The last common theme identified in all the interventions is that the interventions are all offered to utilise professionals, volunteers, and a multi-sectoral or multi-disciplinary approach where numerous people participate in, teach, guide, mentor or support the intervention. Using a team focus ensures that more people can be reached and that the interventions are conducted professionally and appropriately, minimising the risk of re-traumatization of the individual and the family. An overview of the common themes across all the interventions is summed up in Figure 13.

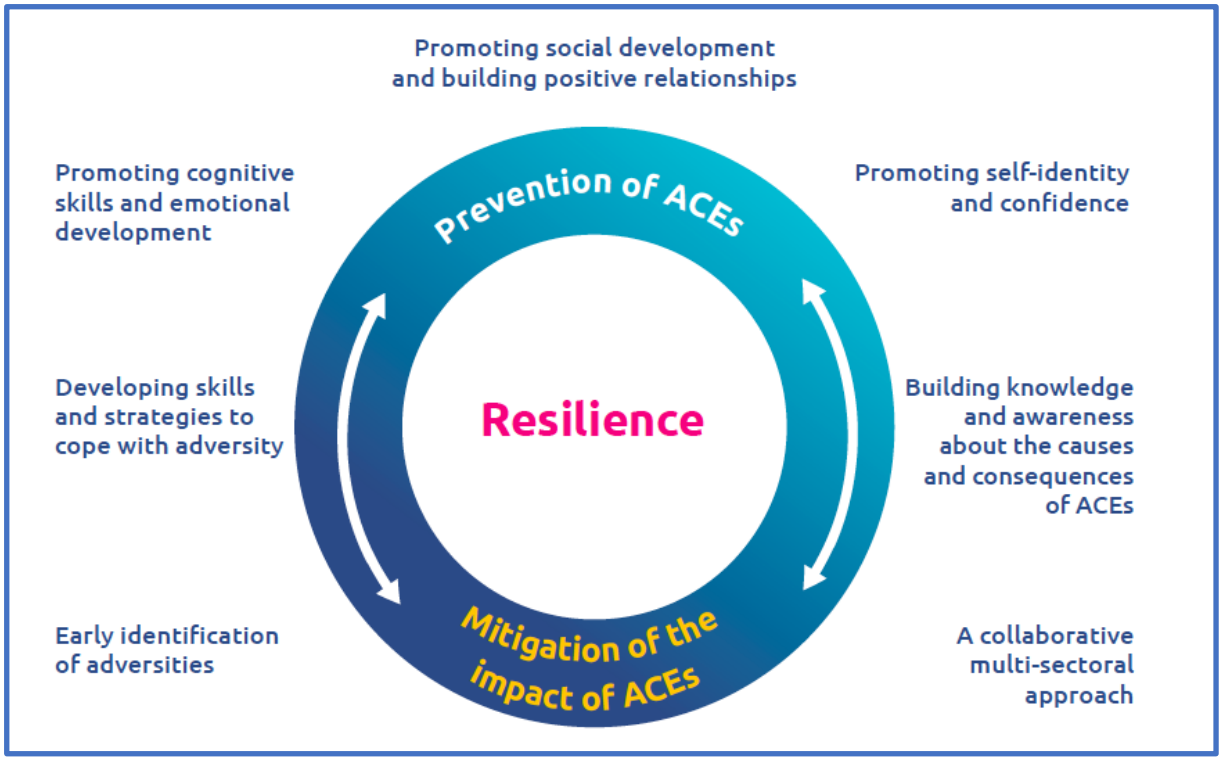


Figure 13: Overview of the key themes of an ACE informed approach, developed from potential interventions aiming to prevent and respond to ACEs (Di Lemma et al., 2019)

5.2 Limitations

As with all research, there are always limitations to every study. This scoping review is no different; therefore, all results should be viewed cautiously. Firstly, this scoping review could never be an exhaustive review of all the interventions available to treat adverse childhood experiences. In this topic particularly, the research on interventions to treat ACE is limited compared to the research on ACE's effects. Nor does this review advocate that any specific intervention should be preferred over another. Instead, it is merely a summary of the evidence-based interventions found using the stipulated search criteria.

Secondly, each approach carries with it its specific limitations, either in the form of how cost-effective it is to implement, how much data there is to support its efficacy, how much

harm it causes to an individual in terms of re-traumatisation, and whether it can easily and effectively be implemented in the country, school or community, and who is qualified to conduct it. These always need to be considered when deciding to utilise an intervention. Thirdly, a limitation of the literature reviewed is that sometimes the study relies on a small number of sample participants, which can influence the validity and reliability (Mancini, 2019). Fourthly, another limitation is that the researcher is using secondary data and has no access to the initial research, therefore is limited in interpreting the results for herself and is limited to what the literature reveals. Not having access to interviews, ACE questionnaires, other assessments conducted or direct feedback from teachers and parents does impact the reliability of this review. Lastly, this review cannot account for any threats to the internal validity of the reviewed literature. It cannot account for any bias, differences, omissions, or manipulations of results to support any specific intervention's efficacy.

5.3 Recommendations for treating ACE in the South African Context

Many individuals in South Africa have been exposed to traumatic events, childhood adversity and systemic racism, which puts them at risk for intergenerational transmission of trauma (Gruy Leary, 2005). This requires trauma-informed, stepped care, which can foster individual change and long-term growth. A recommendation has been made for the use of brief treatments, such as narrative exposure therapy. This can be delivered by staff trained in the modality and is particularly useful in areas with limited resources, such as in the South African context. These therapies have shown efficacy in treating individuals from highly traumatised populations (Robjant & Fazel, 2010). It is important that ongoing care is culturally relevant and recognises and addresses the effects of former oppression on the person.

When working with marginalised populations and previously disadvantaged individuals, stepped care models are recommended. A stepped-care treatment model is structured to meet the immediate needs of the individual in whatever setting is available, whether home-based environment or telephone-based mental health options. It would be important for professionals treating the behavioural effects of adverse childhood experiences to be able to connect with referral sources who may offer care during non-conventional hours. A sliding scale fee structure should be considered to assist the many South Africans with restricted resources and limited access to mental health services (Voith et al., 2020).

Spencer et al. (2022) clearly show the benefits of using a holistic approach, incorporating mind, body and spirit, and its efficacy in treating ACE in South Africa. Best practice, cost-effective CBT-based interventions can be combined with movement-based (yoga/exercise) activity, and the spiritual or cultural component of mindfulness (culturally appropriate prayer or meditation) to effectively assist individuals in dealing with the behavioural effects of adverse childhood experiences. Psychoeducation is recommended as a pivotal role in any intervention considered for South Africa because the violence, injustice, Gender Based Violence (GBV) and Intimate Partner Violence (IPV) all need to be urgently and systematically addressed and halted.

Interventions similar to Parenting for Lifelong Health (PLH) which are targeted at low-resource settings that require support and assistance, but do not have the financial means to access these interventions, seem appropriate for the South African population. The programme is structured in easy-to-understand manuals that can be easily trained and taught to community-based paraprofessionals and volunteers who deliver the programme. The training is supported by Master Trainers and certified professionals who ensure the skills and competencies are appropriately administered (WHO, 2018). Utilising interventions like these, specifically

designed for use in countries with a low socioeconomic population, will help to provide the necessary support to individuals subjected to adverse childhood experiences.

Gaps in the literature show that there is limited research on interventions that have been specifically designed or tested for the South African population and their individual experiences of the various adverse childhood experiences that are common in the country. More research would be recommended on which interventions are best suited to the SA population. South Africa is a diverse country, with eleven official languages and many cultures that need to be considered. The high rates of trauma, violence and gender-based violence require that the interventions aimed at reducing ACE within the SA context factor in the kinds of trauma that SA citizens have been exposed to and specifically address the different types of trauma the individual has experienced. It is also vital that interventions are positioned so that the majority of the population has fair and equal access to these interventions to ensure that the country can benefit from a reduction in ACE, crime, and violence.

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Appendices

Appendix A: Exemption from Ethics Review Letter

18 August 2022

Mrs Athenea Faye Cramer (222116641)
School Of Applied Human Sc
Howard College

Dear Mrs Athenea Faye Cramer,

Original application number: 00018019
Project title: Interventions and Strategies for Addressing Behavioural Effects of Adverse Childhood Experiences: A scoping Review

Exemption from Ethics Review

In response to your application received on 29 June 2022, , your school has indicated that the protocol has been granted **EXEMPTION FROM ETHICS REVIEW.**

Any alteration/s to the exempted research protocol, e.g., Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through an amendment/modification prior to its implementation. The original exemption number must be cited.

For any changes that could result in potential risk, an ethics application including the proposed amendments must be submitted to the relevant UKZN Research Ethics Committee. The original exemption number must be cited.

In case you have further queries, please quote the above reference number.

PLEASE NOTE:
Research data should be securely stored in the discipline/department for a period of 5 years.

I take this opportunity of wishing you everything of the best with your study.

Yours sincerely,

[redacted]

Prof Johanna H Buitendach
Acting Academic Leader Research
School Of Applied Human Science

UKZN Research Ethics Office
Westville Campus, Govan Mbeki Building
Postal Address: Private Bag X54001, Durban 4000
Website: http://research.ukzn.ac.za/Research-Ethics/

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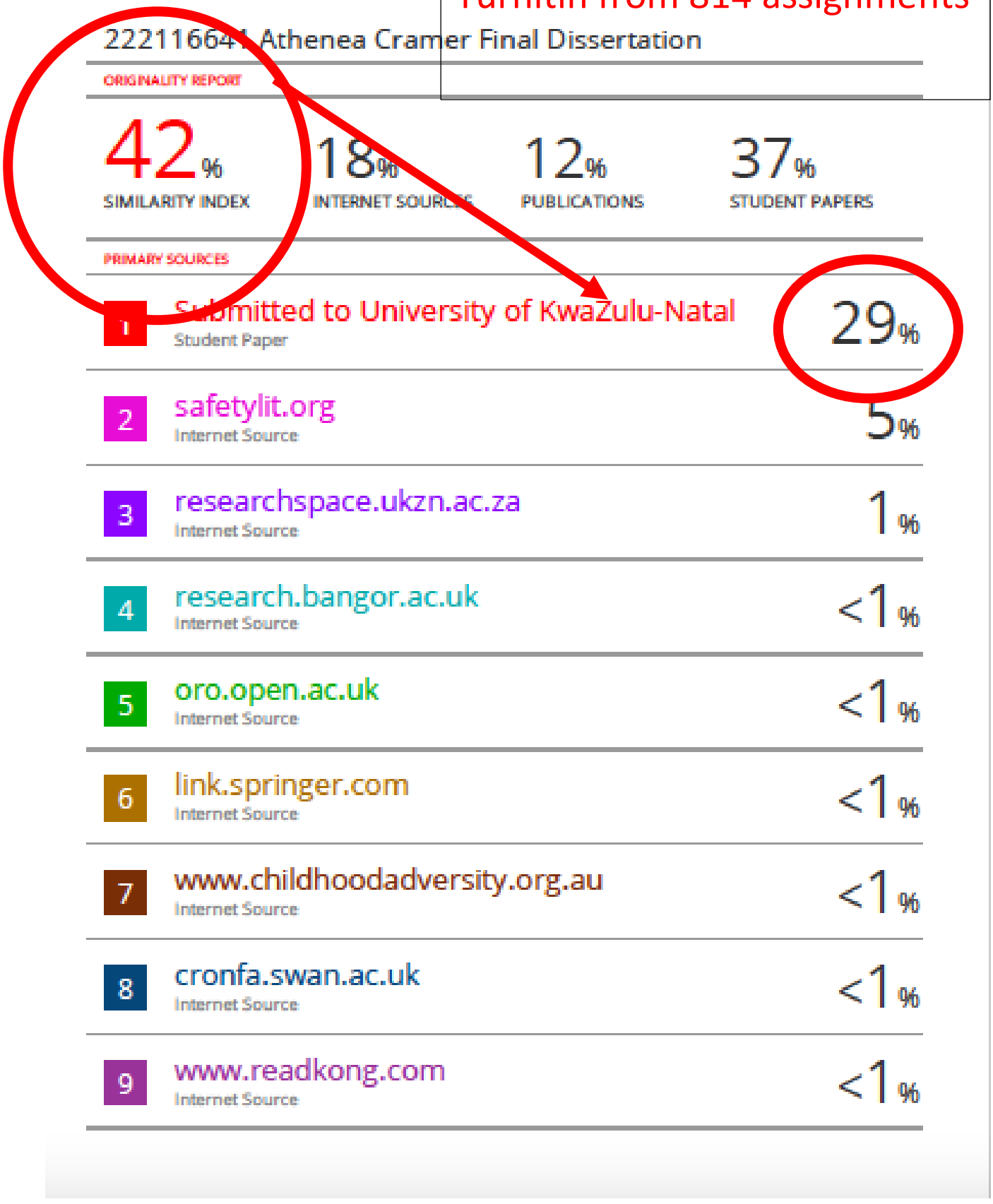

22211664 Athenea Cramer Final Dissertation

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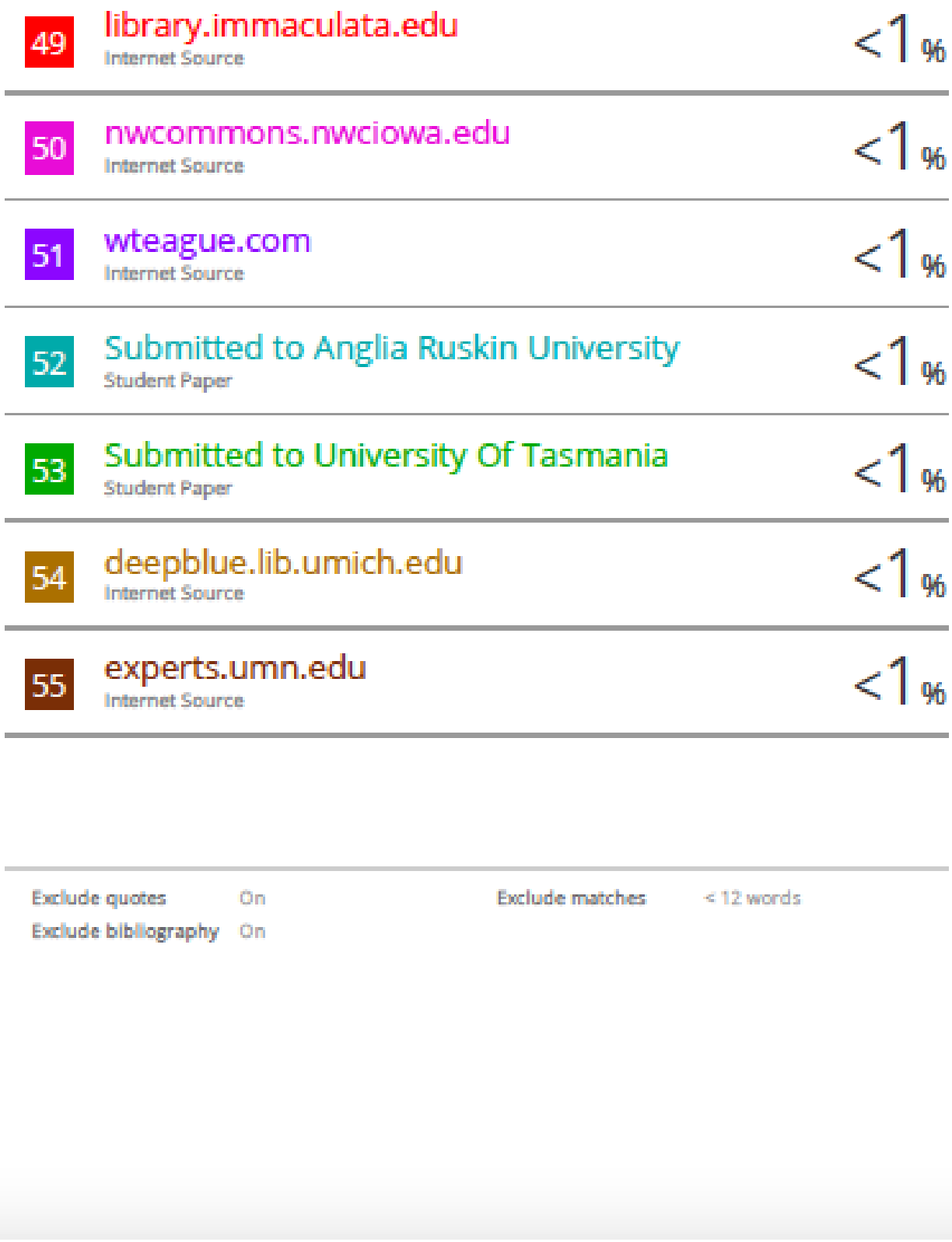
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