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Improving early intervention and detection practices by primary care nurses for children who have undergone trauma.

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<p>Abstract</p> <p>Childhood trauma is a pervasive and distressing issue that affects a large number of children and adolescents worldwide. Trauma can result to a range of mental health problems, including anxiety disorder, depression, anhedonia, dysfunctional attitudes, psychosis and event-stress. As the largest group of health care providers, nurses are in frequent contact with children and families, and as such, they have a unique opportunity to identify and intervene early in child exposure to childhood trauma.</p> <p>The aim of the review was to explore the early interventions and detection for children and adolescents who have gone through trauma, with a view to finding the best practices for primary care nurses. Scoping review was adopted for this literature review. The search was conducted on Pubmed and Cinahl from May-November 2023 and 11 articles were adopted for thematic analysis review.</p> <p>The finding of this review can be viewed in two context. The first being how to improve early detection the includes visual cues, such as cuts, bruises, and lacerations; environmental cues, such as disorganized living environments and the prominent drawing of particular body parts; and biological markers, such as salivary biomarkers and language expressions suggestive of toxic stress. The second is improving early intervention which includes nurses working together with parents and children to engage in body movement activities will help improve brain function and decrease traumatic distress. Helping children feel better about themselves fosters healthier relationships, and primary care nurses can prevent traumatic incidents from recurring by helping to keep children out of risky circumstances.</p> <p>Based on our findings, primary care nurses should be trained more on early ways to detect trauma in children using some specific signs and symptoms which the children might present such as physical body cuts, bruises, lacerations, etc., their body reactions or specific emphasis being made on their body parts and language expressions which might suggest trauma. Also, they should offer and guide parents or caregivers on how to give gentle parenting care to children to have experienced trauma and collaborate with other health care professionals to help keep children away from toxic environments to stop the reoccurrence of traumatic experiences.</p>	
Keywords: childhood trauma, primary care nurse, early intervention, early detection, children and adolescent.	

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1 INTRODUCTION

Childhood trauma is a pervasive and distressing issue that affects a significant number of children and adolescents worldwide. National Child Traumatic Stress Network (2003) defines childhood trauma as an intense and harmful experience a child or youth goes through, which can endanger their physical and emotional well-being. Traumatic experiences during childhood can range from common stressful events such as domestic violence, bullying, neglect, medical emergencies, and physical, sexual and emotional abuse to more severe events such as war, natural disasters and serious accidents (National Child Traumatic Stress Network 2003).

Childhood trauma poses a public health challenge of significant magnitude. World Health Organization (2020) reports that up to 50% of children worldwide experience some form of violence annually, with 120 million girls under 20 suffering from sexual abuse and the consequences can be severe and enduring. Trauma can result to a range of mental health problems, including anxiety disorder, depression, anhedonia (Curran, Perra, Rosato, Ferry & Leavey 2021) dysfunctional attitudes (Wang et al. 2023) psychosis and event-stress (Dokuz, Kani, Uysal, Kuşcu 2022).

Children who have experienced trauma may also struggle with self-esteem issues, self-harm, and suicidal thoughts (Yin et al. 2020; He et al. 2021). According to a report on violence against children by the World Health Organization (2020), people who experienced more than four adverse childhood events such as bullying were up to 30 times more likely to have suicidal ideation or suicide.

All steps involvement in treatment of childhood trauma are important and necessary for a successful recovery. In which, the stage often considered most critical is the establishment of safety and stabilization or early intervention (Substance abuse and mental health administration, 2014). Timely and effective interventions not only alleviate the suffering experienced by young trauma survivors but also reduce the societal burden associated with long-term mental health issues and associated costs of care (Roberts, Huang, Crusto, Kaufman 2014).

Since nurses make up the largest group in healthcare, they are in frequent contact with children and families, and as such, they have a special chance to identify and act early of a child exposure to childhood trauma. Thus, this literature review aims to provide primary care nurses with best practices on early detection and early intervention for children undergone childhood trauma. By encompassing the available evidence, we seek to identify promising approaches that can mitigate the negative outcomes associated with childhood trauma, promote resilience, and enhance the well-being of children.

2 CHILDHOOD TRAUMA AND LATER LIFE EFFECTS IN EARLY ADULTHOOD

2.1 Definition

The National Institute of Mental Health defines childhood trauma as an experience of an event that results in emotional pain or agony for a child, typically leading to long-lasting effects on the child's mental and physical health. People do not experience trauma the same way. What is classified as being traumatic for one person can just be normal or easily resolved by another (King-White 2022).

A child's lifetime risk of experiencing physical and mental health issues (such as heart and lung disease, alcoholism, risk of intimate partner violence, drug use, poor academic or work performance, depression, and suicide) increases with the number of adverse childhood experiences (ACEs) they have experienced (National Child Traumatic Stress Network 2017).

According to WHO's (2020) Global status report on preventing violence against children, it is stated that one out of two children or one billion children suffer some type of violence every year. Nearly three in four children or 300 million children aged two-four repeatedly experience physical punishment and/or psychological violence at the hands of parent & caregivers and one in four children under the age of five have a mother who has experienced intimate partner abuse or is currently experiencing it. This has caused the deaths of 40,150 children between the ages 0-17 per year.

2.2 Common causes of early childhood trauma

2.2.1 Abuse and Violence

Childhood abuse is a tragedy that affects the survivors' health, social standing, and economic well-being for the rest of their lives. This type of childhood trauma includes behaviors such as hitting a child, causing an injury to the child, throwing things and using physical restraints, inappropriate touching or saying sexual things to a child, sexual intercourse, humiliating, shouting down, body shaming, criticism and comparing a child to others (Chandraratne, Asvini, Gunawardena 2018).

2.2.2 Life-threatening accidents or illnesses

Children who have experienced life-threatening illnesses or accidents are said to show post-traumatic symptoms. (Saxe et al. 2003). Examples of these illnesses and accidents are children undergoing transplants, children suffering from cancer, road traffic accidents, sports accidents, and burns. The level of invasiveness in terms of use of medical equipment, invasiveness of progression of diseases, the period of stay at the hospital and the severity of the illness/ accident may have adverse long-term effects on young children (Rennick et al. 2002).

2.2.3 Bullying

Bullying is a type of abuse that can happen at any age. It can be defined as using force or coercion to cause distress or take charge of others (Lamb, Pepler, Craig 2009). Childhood bullying, which can happen directly by physical or verbal abuse, indirectly by rumor spreading or cyberbullying, is a rampant occurrence that results in both physical and mental adverse effects on the victim and bully.

WHO reports that children aged 11-15 who are bullied at school are 13% less likely to graduate from school.

Factors that can lead to becoming a victim include sexuality, a medical condition or disability (Stephens, Cook-Fasano, Sibbaluca 2018) and low self-respect (National Institute of Child Health Development 2017). Bullying victims are more likely to have negative outcomes, such as mental illnesses, drug misuse, criminal offenses, and suicide. Bullied children are more likely to suffer hallucinations and to be rejected, socially excluded, or mistreated themselves, all of which increase the risk that they may experience psychotic episodes (Steenkamp et al. 2021).

2.2.4 Disasters

Natural disasters such as extreme weather events, displacements caused by war and terrorist attacks can cause trauma for children which can lead to damaging their mental health. (Danese, Smith, Chitsabesan, Dubicka 2019). Children's reactions to disaster are influenced by their own personal attributes including gender, race, age, level of development, the support they get and support for their environment (Pfefferbaum, Noffsinger, Wind, Allen 2014).

2.2.5 Sudden or Violent Loss of a loved one

In a study by Brent et al. (2019), it is stated that 5-7% of children experience the loss of a parent before they turn 16 and another study by Worden, (2018) showed that 90% of children will experience losing a close relative or a pet by the time they are adolescents. The effect of childhood grief can be serious and deep-rooted. Children who experience grief may show several symptoms including depression, anxiety, anger, guilt and fear (Kaufman, Spilman 2019), difficulties with concentration and memory (Sandler et al. 2016) and impaired academic performance and social development (Worden 2001).

2.2.6 Neglect

Neglect can be referred to a situation when the child's basic needs are not met or when the emotional needs are ignored. It can have longing and considerable impact on a child's physical and mental health and cognitive growth which includes weakened brain growth, heart problems, low-self-esteem, and emotional problems (Thompson et al. 2012).

2.2.7 Divorce

Parents getting a divorce is a major life change for both parents and their children which might result in traumatic stress and as a result it has become an issue for children to cope with the situation. Children whose parents are divorced are prone to develop mental health problems and experience loneliness, anxiety and being introverts (Schaan, Schulz, Schächinger, Vögele 2019.).

2.3 Effect of childhood trauma

Long-term consequences can linger into adulthood when a child has suffered childhood trauma. This can interfere with a child's developmental process and cause a lasting mental, physical, and emotional deficiency (Dye 2018). A child's understanding of the world and his or her behavior can be affected by being exposed to early childhood trauma. Occurrences that are like the original trauma can stir up acute traumatic responses and post-traumatic symptoms (Kaplow, Saxe, Putnam, Pynoos, Lieberman 2006).

2.3.1 Neurobiological Effects of Childhood Trauma

Traumatic events such as physical abuse and violence, loss of a parent or guardian can enhance the possibility of psychiatric disorders happening in later life especially depressive or anxiety disorders. There is a link between genetic susceptibility and early childhood exposure that causes a long-term effect on the developing brain of a child leading to biological changes and the beginning of mental disorders (Nemeroff 2004).

Children who have been exposed to trauma are vulnerable to experiencing anxiety disorders including panic disorder, posttraumatic stress disorder (PTSD), and generalized anxiety disorder (Nemeroff 2004). Also, exposure to Early childhood trauma causes a damaging effect affecting a child's growing body and brain leading to neurological, physiological and epigenetic reasons for unsafe attitudes (Symonds 2020).

2.3.2 Health Effects of childhood Trauma

In a study carried out by Felitti et al. (1998), experiencing four or more types of childhood trauma causes an increase in poor self-rated health, having more sexual partners, sexually transmitted diseases, ischemic heart conditions, cancer, obesity, eating disorders, lung and liver diseases, and skeletal fractures. Symonds (2020) stated that drinking, smoking, and engaging in dangerous unhealthy activities are more likely outcomes of childhood trauma.

Childhood traumas can change physical stress process, making the child more receptive to stress throughout their life's journey. Substance abuse is a self-soothing response attempting to deal with stress (Maté 2012). Increased use of cigarette, marijuana and, alcohol use at a substantial rate is linked to individuals who have been exposed to adverse childhood trauma, placing them at risk for addiction as they emerge into adults (Rogers et al. 2021).

2.3.3 Emotional Effects of Childhood Trauma.

According to International Society for Traumatic Stress Studies, the impact of childhood abuse can range from having feelings of worry, shame, anxiety, guilt, hopelessness, helplessness, grief, sadness and anger. Children who have gone through childhood trauma are more likely to develop depression and attempt suicide (Bahk et al. 2017). The probability of suicidal ideation was considerably higher in people with major depressive disorder who had experienced childhood trauma (Wang et al. 2021).

Chronic depression in adulthood can result from childhood trauma (Negele A et al. 2015). When assessing children and adolescents, it is crucial for primary nurses to ask about exposure to abuse because childhood trauma has a negative impact on later life (Bahk et al. 2017).

The brain and stress response systems may be altered by childhood trauma, raising the risk of mental and physical health problems in later life. (Kuzminskaite et al 2022).

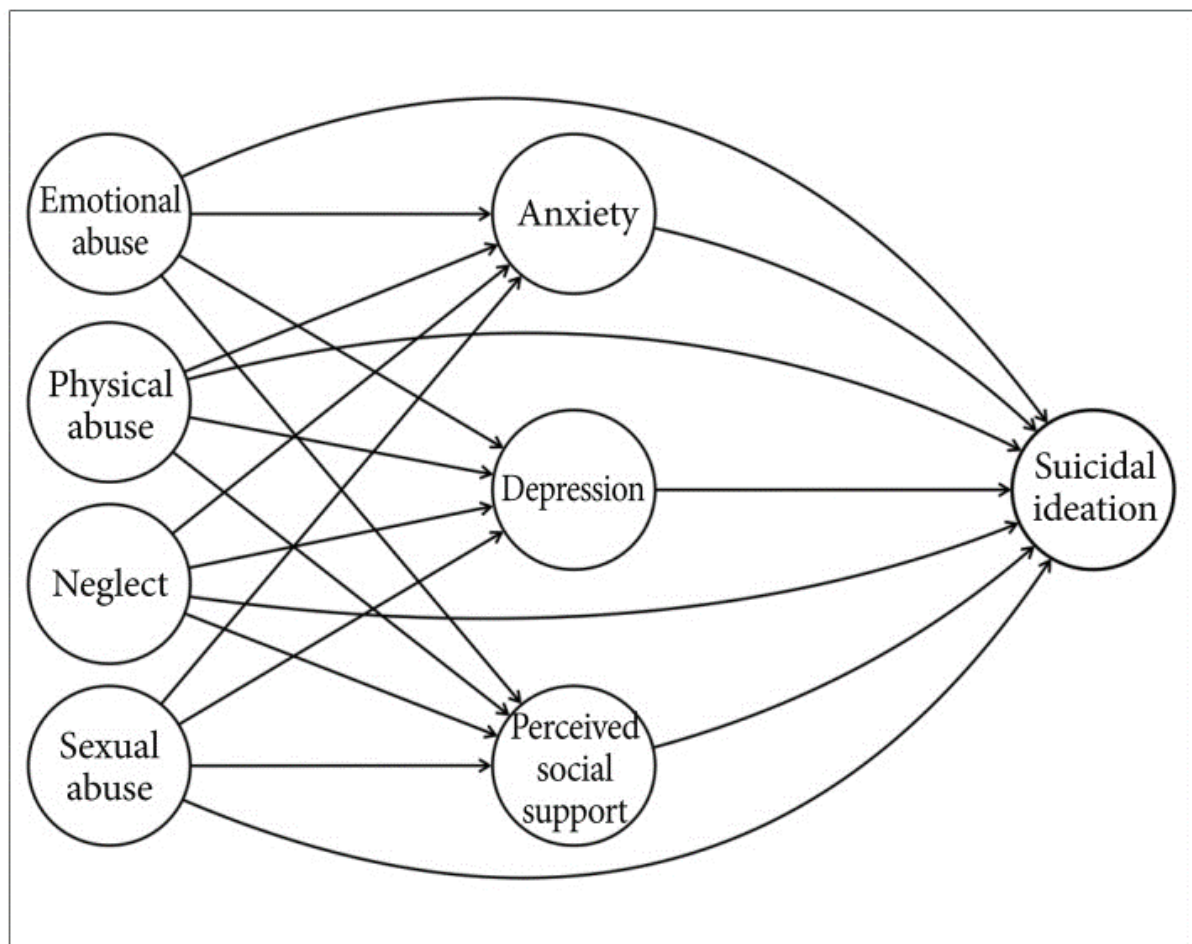


FIGURE 1. Hypothesized model of the relationship between childhood maltreatment and suicidal ideation adapted from (Bahk et al.,2017).

The hypothesized model of relationship between childhood maltreatment and suicidal ideation shown in figure from (Bahk et al.,2017) has predicted that childhood sexual, physical and emotional abuse as well as child neglect would be associated with an increased risk of suicidal ideation in adulthood, either directly or indirectly. This hypothesized model investigated whether the relationship between suicidal ideation and perceived social support, depression, and anxiety could be explained by a model that included perceived social support, depression, and anxiety as mediators.

Role of nurse in early stage of trauma

The early stage after a traumatic event is the time immediately after the incident which varies in duration according to each child, their age, their developmental level, the type and gravity of the traumatic event. They might show symptoms such as withdrawal, fear, changes in their sleep pattern, anger or aggression, etc. (National Institute of Mental Health 2019).

The importance of early-stage intervention in caring for children who have experienced trauma is to prevent further harm (American Academy of Pediatrics 2015.) which will in turn reduce the harshness and duration of trauma related signs (Merson et al 2019) leading to swift recovery and healing. (Lee et al. 2014).

Also, early intervention can help promote connection between the children who have experienced trauma and their health care providers leading to improved support (Euser et al.,2013). Increase in long-term results such as improved overall mental health, improved social and emotional development and prevention of further trauma (Wilson et al. 2015).

They assess and manage physical symptoms that they might suffer after experiencing trauma such as headaches, disturbed sleeping pattern which helps them become better in their treatment and improve their general wellbeing (Cheema 2021).

Nurses act as educators for children and their families by giving information about the trauma suffered, its outcomes and the treatments available for them (Cocker et al. 2016).

3 AIMS AND RESEARCH QUESTION

The aim of the review is to explore the early interventions for children and adolescents who have gone through trauma, with a view to finding the best practices for primary care nurses. This is to improve early interventions given to children and adolescents who have been exposed to trauma to prevent problems in later life. This review intends to increase primary care nurses' understanding of childhood trauma by providing best practices on how to detect and provide intervention.

Therefore, this review intends to provide answers to the following research question:-

What are the best early detection and intervention practices that could be adopted by primary care nurses caring for children and adolescents who have undergone trauma to support them to overcome trauma?

4 METHODOLOGY

4.1 Research design

Scoping literature review will be adopted as a tool to find answers to the research question. Scoping review is an integration of information in a systematic way to identify and comprehensively summarize available literature on a specific topic. As the second most prevalent type of knowledge synthesis according to health professions education (HPE) journals, scoping reviews serve the purpose of identifying nature of the literature, scope, extent and gaps of diverse existing research on given topic. (Mak & Thomas 2022.)

Choosing a scoping review as the research methodology for investigating the best early intervention for childhood trauma can be a well-suited approach for a number of reasons. Firstly, childhood trauma is a wide-range and complex topic, scoping review allows to understand the scope and explore variety of available interventions in different fields. Besides, this method can encompass a wide variety of literature sources, including academic research, clinical guidelines, and reports from organizations to provide a comprehensive view. Secondly, scoping review can assist to identify which interventions have been well-studied, and where there might be under-explored areas. Lastly, scoping review is a more adaptable option for conducting in the context of childhood trauma intervention when compared to a systematic review due to resource constraints and time limitations. (Mak & Thomas 2022.)

Like any research approach, scoping review are not without controversy and difficulties. The criteria for inclusion and exclusion in scoping reviews may be subjective, which can result in bias in the selection of research. This is a reason why scoping reviews are frequently criticized, in addition to search strategy and resource issues. Another criticism is lacking clear and standardized methodologies, which can make possible misconceptions related to the purpose, scope, and rigor of scoping reviews. (Mak & Thomas 2022.)

We address the criticisms by clearly defining research question and objectives which explore and map the available detection and interventions for childhood trauma. To guarantee the quality and rigor of the review, we adhere to accepted standards include peer review and the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA). (Mak & Thomas 2022.)

According to Mak & Thomas (2022), there are five steps in conducting a scoping review that includes 1. Define research question 2. Literature search 3. Select literature to incorporate into review 4. Organize and record the data 5. Analyzing data, report result and validation.

4.2 Literature search

The literatures search was conducted from April to October of 2023. The electronic databases searched were PubMed and Cinahl databases for healthcare, JBI and Cochrane databases were not used because there are no relevant literature related to the review. Keywords are childhood trauma, primary care nurse, early intervention, early detection, children and adolescent by employing a combination of keywords and Boolean operators (AND, OR) to refine search strategy. We searched for

Childhood trauma AND Early intervention OR detection AND primary care nurses on Pubmed. We searched on Cinahl by using the terms Early intervention OR Early detection OR Diagnostic AND Adverse Childhood Experiences OR Child abuse OR Childhood trauma AND Children OR Adolescents.

The search on Pubmed and Cinahl together we got 3287 findings, and we retained 2162 by limited publication literatures between 2013 and 2023. 2103 literatures remained based on English language, 664 remained after applying the age range 0-17 years old and 286 of full text literatures are remained for title and abstract screening.

4.3 Selecting literature

The results of our search are shown according to the preferred Reporting Items for Systemic Review and Meta-Analysis (PRISMA) flowchart (Figure 2). The search on Pubmed and Cinahl together we got 3287 findings, and we retained 2162 by limited publication literatures between 2013 and 2023. 2103 literatures remained based on English language, 664 remained after applying the age range 0-17 years old and 286 of full text literatures are remained for title and abstract screening.

Finally, 90 articles were excluded due to irrelevant criteria of population sized and 185 articles were excluded for not satisfying the inclusion intervention and detection criteria. Only 11 articles were maintained for analysis review.

We searched for articles that met the below inclusion criteria:

Literature focused on children and adolescents (1-17 years of age) who have been exposed to trauma. Literature targeting adults aged 18 and above were excluded from review.

Literature focuses on potentially traumatic events including bullying, neglect, sexual or physical abuse and violence, life-threatening accidents or illnesses, natural disasters and unintentional injuries are included.

Articles published in English were included while articles published in other languages were excluded.

Articles published between 2013-2023 were included because interventions in older articles might not be applicable.

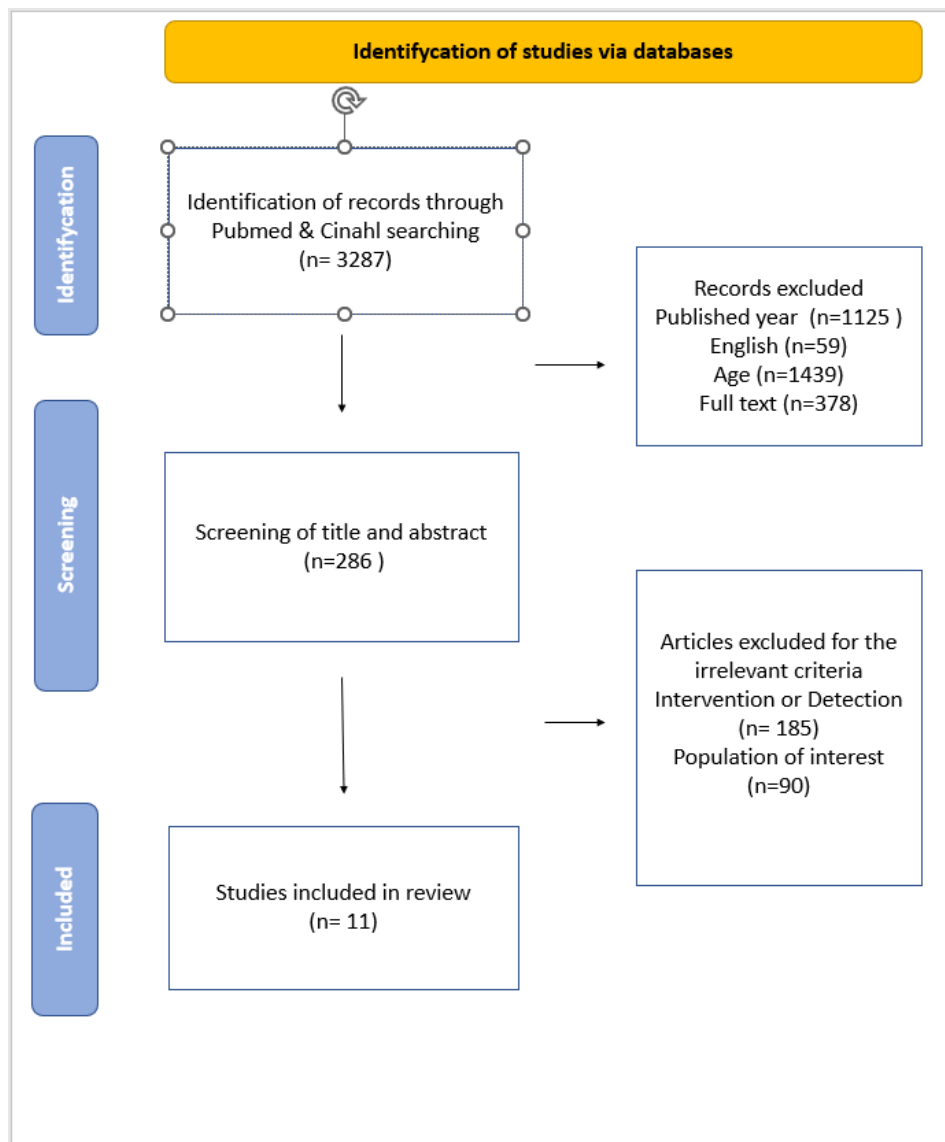


FIGURE 2. PRISMA flow diagram for childhood trauma study from Pubmed and Cinahl (Rethlefsen & Page 2022)

4.4 Literature Appraisal

The Joanna Briggs Institute (JBI) Critical Appraisal Checklist for Systematic Reviews and Research Syntheses (Joanna Briggs Institute, 2017) was adopted to thoroughly assess potential bias in the design of extracting relevant information from each included study. We limited our search in English language and published within 10 years for the accurate understanding and relevance. The keywords childhood trauma, primary care nurse, early intervention, early detection, children and adolescent were searched on healthcare databases Cinahl (Cumulative Index to Nursing and Allied Health Literature) and Pubmed, evidence-based practice databases JBI and Cochrane. The results found on JBI and Cochrane did not meet our inclusion criteria. CINAHL and PubMed were chosen databases for conducting this literature review. These are well-suited for nursing and allied health topics with ideal resources related to healthcare interventions for childhood trauma.

The process involves two reviewers screening independently titles and abstracts to identify potentially relevant articles based on inclusion criteria that is early intervention, early detection of childhood trauma and children under 18. A third reviewer was consulted anytime there was a disagreement regarding the screening. There are 5 articles mentioning childhood trauma detections and 6 articles related to interventions. Table 1 below represents the extracts from the studies adopted for review including the intervention/detection and the results, the population size, study design, author and publication year.

TABLE 1. Literature Summary from adopted studies.

Author(s) and Year	Study Design	Type of Intervention/ Detection.	Results	Traumatic Event	Population Size
<i>Barnes et al. (2020)</i> <i>(Identifying Adverse Childhood Experiences)</i>		Safe Environments for Every Kid Parent Questionnaire-Revised (SEEK) Parent Questionnaire- Revised (SEEK PQ-R) Well-childcare visit Evaluation Community resources, Advocacy, Referral, Education (WE-CARE) screeners	<i>Pediatricians are experts in prevention and are prepared to implement best practices to lessen the burden of ACEs on society with the aid of resources like electronic health records (EHR).</i>	<i>Adverse Childhood Experiences</i>	<i>Pediatrics</i>
<i>Bick et al., (2019)</i> <i>(Early Parenting Intervention)</i>	<i>Randomized Clinical Trial</i>	<i>Attachment and Biobehavioral Catch up (ABC)</i>	<i>Indicators of middle childhood brain maturation can be impacted by the risk of maltreatment and domestic adversity. In addition to being raised in low-income early contexts, children also experienced numerous other risk factors that may have an impact on their neurodevelopmental profiles.</i>	<i>Early Adversity</i>	<i>Children</i>
<i>Roberts et al. (2014).</i> <i>(Early Identification)</i>	<i>Descriptive Cross-Sectional design</i>	<i>Traumatic Events Screening Inventory-Parent Report Revised-Long Version (TESI-PRR)</i>	<i>It has been discovered that the effects of exposure over time can be successfully mitigated in children exposed to trauma through early detection, intervention, and ongoing follow-up.</i>	<i>Traumatic Events</i>	<i>Children</i>
<i>Boparai et al. (2018)</i> <i>(Biological Impacts of Childhood Adversity).</i>	<i>Scoping Review</i>	<i>15 unique intervention programs</i>	<i>Children exposed to adversity in institutional, foster care, and community settings can benefit from interventions that normalize or enhance their outcomes.</i>	<i>Childhood Adversity</i>	<i>Children and Adolescents</i>

Author(s) and Year	Study Design	Type of Intervention/ Detection.	Results	Traumatic Event	Population Size
Loveday et al, (2022) (Screening for Adverse Childhood Experiences)	Systematic Review		It is necessary to conduct studies to determine the relative benefits of screening for Adverse Childhood Experiences (ACEs) versus social determinants of health (SDOH) screening. Examining how ACE screening affects parent-child connections and mental health will require further research.	Childhood adversities, including parental depression, parental substance abuse, harsh punishment, major parental stress, IPV, and food insecurity.	Children aged 0-12 years.
Sanders et al. (2020)	Randomized Controlled Trial	Research-based, Developmentally Informed (REDI) intervention	Researchers may make a significant difference in the lives of many children by supporting early social-emotional interventions such as REDI.	Adverse Childhood experiences.	Children
Pavone et al. (2022) (Diagnostic tool in Detection of Physical Child Abuse).	Systematic Review	Escape, Child Trauma Questionnaire (CTQ-SF), SIPCA (Screening Index for Physical Child Abuse), and SPUTOVAMO-R	Despite of surveys designed to detect validated child abuse, there was no single global questionnaire for early detection. A combination of more than one test may improve the investigation's validity.	Physical Child Abuse	Children
Salminen-Tuomaala et al, (2021) (Identification of Child and Youth Maltreatment)	Mixed Method study	Using healthcare professional competence to detect child maltreatment	Recognizing child psychological maltreatment are more difficult than neglect and physical maltreatment	Child and Youth Maltreatment	Children under 18.
Jaroenkajornkij et al, (2022) (Use of Self-Figure Drawing)	Differential Instrument Validation	Self-Figure Drawing	There are differences between drawings and questionnaire methods. The more severe abuse experiences the more a child tends to reluctant to disclose	Child Abuse: Sexual, Physical, and Emotional Abuse	Children (13–18 years old)
Mc Carry et al, (2021)	Mixed Methods	Early Help Services	Early help services provided valuable support specifically for CYP(children and young people	Domestic Violence	Children and Young people.

4.5 Thematic analysis

The review adopted thematic analysis as a tool for analyzing data and identifying the result of our research question. Thematic analysis helps to identify and group the key themes of the review by analyzing a vast number of selected literatures. Also, thematic analysis allows us to compare the

differences between intervention methods from which we can choose a particular theme for the review. During coding and analyzing into themes some important data might be lost (Javadi et al. 2016).

According to Maguire et al. (2017), there are Six steps of thematic analysis. Table 2 demonstrates the process by which thematic analysis procedures were carried in order to obtain our detection and intervention findings for the literature.

1. Familiarizing data: we read through the articles and picked relevant points to our research question from the findings in the articles.

2. Looking for theme: At this stage, we organized and grouped the data into intervention and detection.

3. Search for theme: we narrowed down from the grouping to get a particular theme reflecting the important points from the review.

4. Review theme: We review our themes, trying to go back to the main point and making sure that we did not derail from the point we have got from the literature.

5. Define theme: we define the interaction between the themes and make our own finding which is the result of the review.

6. Report the finding that describes what we have found.

TABLE 2. Findings of detection and intervention from literature.

<i>Extract from the article</i>	<i>Codes</i>	<i>Subthemes</i>	<i>Theme</i>
<p>a. One promising idea is to use the EHR (Electronic Health Records) for more automated ACE identification, using technological solutions such as natural language processing of free-text fields or automatically flagging diagnostic codes indicative of ACEs.</p> <p>b. EHRs would provide an alert to the clinician when some form of ACE screen is positive, with suggested language for helping families understand how life experiences shape brain development and health, asking the patient/family if help is wanted, and providing referrals to the appropriate resource or service.</p> <p>c. Novel methods of identifying ACEs, such as parent ACEs, or even identifying toxic stress itself via altered salivary biomarkers, or various biological moderators of individual differences in sensitivity to experiences.</p> <p>(Barnes et al., 2020).</p>	<p>Electronic Health records.</p> <p>Novel methods via salivary biomarkers or biological moderators.</p>	<p>Free text language expression and body sensitivity to experiences.</p>	<p><i>Biological Indicators</i></p>
<p>a. children who received Attachment and Biobehavioral Catch-up (ABC) have shown more optimal cognitive and socio-emotional outcomes, and more normalized stress reactivity during early childhood. Children who received ABC intervention at the earliest ages would be most likely to demonstrate more normative patterns of electroencephalography (EEG) spectral power in the beta band (12–20Hz) at 8 years of age.</p>	<p>Parents sensitive response to child's distress brings about a change in a child's neural function.</p>	<p><i>Parent Empathy</i></p>	<p><i>Gentle Parenting</i></p>

Extract from the article	Codes	Subthemes	Theme
<p>b. Results also indicate that early parenting intervention for maltreating families supports more normative patterns of neural function in middle childhood.</p> <p>c. A key component of ABC was to help parents engage with their child without being frightening, arousing, or excessively harsh when disciplining. This supports our hypothesis that, for maltreating families, interventions that specifically target parenting will be most effective for improving child outcomes</p> <p>d. early home and family risk factors can predict later trajectories of brain function and that early intervention may mitigate these effects. Therefore, access to early parenting intervention for maltreating families should be prioritized.</p> <p>(Bick et al., 2019).</p>			
<p>a. young children with behavioral challenges experienced at least one type of trauma event in their lifetime and that a large percentage of these children were also experiencing physical health symptoms and health related problems</p> <p>b. systematic screening for psychological trauma exposure in EDs may be effective in increasing the detection of trauma, including suspected child abuse and/or neglect. Further, it points to the need to screen for other types of traumatic events in childhood (e.g., natural disaster, witness to family violence) as these events have also been found to lead to stress-related disease, which in turn may affect health, subsequently leading to greater use of health services and increased financial burden to society.</p> <p>(Roberts et al., 2015).</p>	Physical health problems and behavioral problems link to psychological trauma exposure	Physical and behavioral problems	Health problems
<p>a. Earlier intervention placement and greater foster care stability also improved outcomes in children. Factors such as earlier randomization and greater caregiver quality (greater sensitivity and attachment) predicted faster height catch-up.</p> <p>b. Across sample types, three key elements facilitated intervention effectiveness on biological health outcomes: strong parenting skills, earlier intervention placement, and greater intervention engagement. Supportive and positive parenting, specifically greater responsiveness, nurturance, warmth, sensitivity, and strong attachment should be promoted based on the evidence that these factors played a role in improving outcomes among intervention children and adolescents</p> <p>c. Research shows that the first wave of substantial brain development occurs within the first few years of life and therefore this window is a one of the critical periods for intervention.</p> <p>(Boparai et al. 2018).</p>	Supportiveness, responsiveness, sensitivity and strong attachment	Parenting in the first few years is a critical period for intervention.	Early parenting care
<p>REDI was a multi-component intervention that included intervention activities designed to promote language and emergent literacy skills as well as social-emotional and self-regulation skills.</p> <p>Preschool teachers focused explicitly on supporting emotion talk, self-regulation strategies, and social problem-solving skills on a daily basis. The relative roles that enhanced emotion knowledge or language skills in preschool, or improved learning engagement and interpersonal relationships during the elementary school years.</p> <p>(Sanders et al. 2020).</p>	Skills such as language promotion, literacy skills and resilience.	Education on self management skills	Building self esteem
<p>The physical signs of abuse had involved visible bruises, lacerations and, in the most severe cases, fractures and distorted limbs possibly resulting from physical violence and punishment</p>	Physical, psychological maltreatment	Physical signs, physical health problems, living	Visual indicators

Extract from the article	Codes	Subthemes	Theme
<p>The identification of psychosocial maltreatment was based on the respondents' observations regarding the child's psychological development, apparent insecurity associated with a parent, mood or expression of emotions and signs of self-destruction</p> <p>Parents' use of drugs and alcohol also seemed to have become more common</p> <p>The respondents described unclean, cluttered and disorganized homes. Food had not always been available, or it had been spoiled, or replaced by plenty of alcohol.</p> <p>(Salminen-Tuomaala et al. 2021).</p>		condition, behavioral expression	
<p>Drawings offered symbols of the experienced abuse.</p> <p>Child sexual abuse (CSA): The emphasized face lines (double, hollow, shaded), eyes (dots, shaded, hollow, crossed, omitted), and hands and arms (clinging, detached, shadowed, omitted, cutoff) were presented in the drawings of CSA, this could denote the predicament in deciding between hiding or disclosing the traumatized experience. Genitals were significantly presented in the drawings of CSA participants, which could be a positive indicator of sexual abuse.</p> <p>Child physical abuse (CPA): Significant indicators for CPA that are the emphasized or hair standing up (signifying insecurity, helplessness, fear, and anxiety), the emphasized or double ears (symbolizing the ability to receive and deal with the external world) and the emphasized hands and arms (indicating helplessness and anxiety in dealing and interacting with the environment or the external world). The emphasized hair could also act as an indicator to the frontal lobe, suggesting the unconscious feelings of the uncontrolled impulsivity or the brain injury as a result of the violence inflicted.</p> <p>Child emotional abuse (CEA): In self-figure drawings are often depicted as small, faintly drawn, or positioned at the paper corners, indicating low self-esteem or low self-concept. The lack of facial details in a figure represents the lack of voice and identity, while the lack of arms represents the feeling of helplessness. Face shading, broken/varying line, and off-balance figures reflecting insecurity (implying a state of anxiety-signs of emotional abuse)(Jaroenkajornkij et al, 2022).</p>	Abuse can be detected by emphasis shown in drawings	Picture of body parts.	Visual Expression
<p>Young people's adoptive parents were invited to take part in the bilateral activities and support their children's emotional well-being.</p> <p>This dimension was included to help children and their parents connect to reprocess the child's trauma together working through feet bilateral stimulation to integrate the young people's left brain/right brain. this protocol is effective for decreasing the level of distress and disturbance associated with the trauma.(Draper et al, 2021).</p>	Sport activity with parents supports the child's emotional distress.	Physical exercise and brain function.	Body movements and parenting
<p>Findings from the interviews indicate that families had generally been exposed to higher levels of assessed risk of domestic violence at some stage, and although high-risk support services were withdrawn, problems were ongoing, often because post-separation abuse around child contact was not adequately addressed. (Mc Carry et al, 2021).</p>	Domestic abuse can be avoided if the child is taken away from the abuse source.	Removing the child from abuser	Supportive environment

5 RESULTS

5.1 Detection

In our review, we found that childhood trauma is mostly detected by visual indicators which includes physical signs (bruises, cut, laceration) (Salminen-Tuomaala et al. 2021), living environment (dirty house, disorganized surrounding) (Salminen-Tuomaala et al. 2021), and emphasized drawing of different body parts (standing hair, hollow eyes, big genitals) (Jaroenkajornkij et al. 2022), using healthcare records (Barnes et al. 2020) . Biological indicators such as salivary biomarker and language expressions (Barnes et al. 2020) are also used to detect toxic stress which can be used as a childhood trauma indicator. Increased health challenges can be linked to traumatic experiences, therefore emergency departments are in well positioned for early identifying childhood trauma (Roberts et al., 2015).

5.1.1 Visual Indicators

In a survey by Salminen-Tuomaala et al. (2021), it is highlighted that emergency care providers can clearly identify a crucial visual cue for identifying childhood trauma. These professionals have observed varying degrees of abuse, with physical manifestations including visible bruises, lacerations, and, in severe cases, fractures and distorted limbs, potentially stemming from physical violence and punishment. Additionally, emergency care professionals noticed varying degrees of child maltreatment with regard to basic necessities. The respondents mentioned circumstances comprising "dirty nappies, no feeding" and a failure to provide for the child's fundamental needs, which included starvation and inadequate cleanliness.

5.1.2 Emotional expression

According to Jaroenkajornkij et al. (2022), emotional expression, particularly through drawings, can serve as a useful method for detecting childhood trauma. The illustration's symbols in drawings offer insights about various forms of abuse. Significant genital representations were found in Child Sexual Abuse (CSA)'s drawings. Indicators of child physical abuse were hair that stood up, which is a sign of powerlessness, fear, worry, and insecurity. In Child Emotional Abuse (CEA), self-figure drawings often depicted small, faintly drawn figures or those positioned at the corners of the paper, signifying low self-esteem or a diminished self-concept.

Salminen-Tuomaala et al. (2021) reinforce the value of emotional expression in identifying trauma experienced as a youngster. In their study, participants identified important markers of a child's psychological development, such as a child's seeming insecurity around a parent, as evidenced by their silence or exhibit of dread. Excessive aggression and impulsive behavior were concerning indicators of mood or emotional expressiveness. This emphasizes how vital it is to recognize emotional cues as critical indicators for locating and treating childhood trauma.

5.1.3 Health problems and health record

The intersection of health problems in children and Electronic Health Records (EHR) presents a promising way for detecting childhood trauma. Based on the findings of Roberts et al. (2015), a considerable percentage of young children who face behavioral problems have had at least one traumatic event in their life, and many of them also display physical health symptoms and related problems. In addition, Salminen-Tuomaala et al. (2021) underline the significance of health information in locating cases of trauma experienced as children. In their study, participants detailed instances of careless handling of ill children or adolescents. These incidents included parents ignoring visits to children's health clinics or long-term illnesses, as well as important vaccinations. Instances of belittling a child's injuries and failing to arrange appropriate examinations and care were also documented. Study by Salminen-Tuomaala et al. (2021) highlights the holistic potential of integrating health records for thorough childhood trauma identification by shedding light on cases of sexual assault against children that are supported by evidence and client narratives.

5.1.4 Biological Indicators

Novel methods for detecting Adverse Childhood Experiences (ACEs), including those resulting from parental ACEs, include evaluating toxic stress using changed salivary biomarkers or investigating different biological moderators that affect how sensitively each person is affected by life events. Another approach utilizing technology solutions to identify ACEs such as automatic diagnosis code flagging or natural language processing of free-text fields (Barnes et al., 2020.). These changes in the approach to diagnosing childhood trauma is forward-looking, with potential improvements in efficiency and precision due to the convergence of biological markers with cutting-edge technology.

5.1.5 Living environment

Research findings shown that childhood trauma can be detected by looking at one's living surroundings. Early risk variables from the home and family have been found to be predictive of later brain function trajectories (Bick et al., 2019). Salminen-Tuomaala et al. (2021) further highlight the profound impact of parents' alcohol and substance use on children's living conditions, revealing indicators such as unclean, cluttered, and disorganized homes. Concerning signs include availability of food, often replaced by spoiled items, and a noticeable presence of alcohol. The study's respondents also noted a rise in difficult family circumstances and dysfunctional family dynamics, along with a possible link between domestic violence and childhood trauma.

5.2 Intervention

Gentle and early parenting care plays a vital role in supporting children who have experienced childhood trauma which helps in improvement of brain development and function (Bick et al. 2019). Engaging in body movement with parent company also helps improve brain function and decrease traumatic distress (Draper et al. 2021). Training children to build self-esteem is an intervention practice to grow interpersonal relationships (Sanders et al. 2020). Disengaging a child from a toxic to supportive environment will stop the recurrence of traumatic experiences (Mc Carry et al. 2021).

5.2.1 Gentle Parenting

The findings from Roberts et al. (2015) emphasize that early parenting treatment promote more normative patterns of brain function in middle childhood. Assisiting parents in engaging with their children without introducing fear, arousal, or excessive harshness during discipline is an important part in the context of Attachment and Biobehavioral Catch-up method. This aligns with the findings by Boparai et al. (2018) that interventions specifically targeting parenting are most effective in enhancing child outcomes within maltreating families. Further, Draper et al.'s research from 2021 mentioned the positive impact of supportive and responsive parenting, highlighting the role of factors such as nurturance, warmth, sensitivity, and strong attachment in improving outcomes for intervention children and adolescents. Additionally, the incorporation of bilateral activities such as physical activities with parent company and emotional support for adoptive parents, as described by Draper et al. (2021), is designed to facilitate the connection between parents and their children, enabling them to collectively process the child's trauma.

5.2.2 Early social-emotional interventions

Implementing early social-emotional interventions, such as the Responsive Early Childhood (REDI) program, can have significant impact on the well-being of children who have experienced childhood trauma in their early years, according to Sanders et al. (2020). This multi-component intervention is designed to promote language and emergent literacy skills and also to foster social-emotional development and self-regulation. Within the framework of REDI, building emotion talk, self-regulation strategies, and social problem-solving skills on a daily basis are valuable resource in supporting children and promoting positive developmental outcomes. The study conducted by Sanders et al. (2020) explores the relative contributions of improved language and emotion awareness in pre-school, looking at how these affect improved learning engagement and relationships with others in elementary school.

5.2.3 Disengaging from a toxic environment

Removing oneself from hazadous environments is another intervention for children who have experienced childhood trauma involves toxic circumstances. Insights gained from study by Mc Carry et al., (2021) reveal that families, having faced elevated levels of assessed risk related to domestic violence frequently struggled to deal with lingering problems even after high-risk support services were discontinued. This challenge was frequently attributed to inadequate addressing of abuse concerning child contact (Mc Carry et al. 2021). Additionally, it was discovered that treatments aimed at encouraging more stability and early placement in foster care improved the outcomes for traumatized children (Boparai et al. 2018). For children navigating the intricacies of childhood trauma, identifying and leaving toxic circumstances is essential to encouraging favorable outcomes.

6 DISCUSSION

Childhood trauma is a serious issue that affects a large number of children and adolescents worldwide. It includes a wide range of experiences, from domestic violence and bullying to major catastrophes such as natural disasters and life-threatening accidents. Childhood trauma has serious and long-term effects, typically leading to a variety of mental health issues such as anxiety disorders, depression, and even suicide ideation. Its considerable impact on the well-being of children and adolescents, it is critical to address childhood trauma and research effective early detection and intervention strategies.

The transforming influence of supportive caregiving on children's neurodevelopment and overall well-being is highlighted by the Attachment and Biobehavioral Catch-up (ABC) and Research-based, Developmentally Informed (REDI) therapies. This research highlights how important it is for primary care nurses to inform parents and other caregivers about the value of supportive and responsive interactions for traumatized children.

The primary means of identifying childhood trauma are visual cues, such as cuts, bruises, and lacerations; environmental cues, such as disorganized living environments and the prominent drawing of particular body parts; and biological markers, such as salivary biomarkers and language expressions suggestive of toxic stress. Emergency rooms are critical hubs for early trauma identification because health issues are frequently linked to these experiences. In terms of intervention, early and loving parental care greatly supports traumatized children and fosters improved brain function. Parental participation in physical activity improves brain function and lessens traumatic distress. Encouraging kids to feel better about themselves promotes healthier relationships and keeping them away from dangerous situations keeps traumatic events from happening again.

Primary care nurses should improve for identifying environmental and visual signals that might indicate childhood trauma, particular training programs must be provided to enhance primary care nurses to identify possible trauma. It is also important to remember that continuous education, teamwork, and evidence-based approaches are essential for assuring the well-being of young survivors.

Also, primary care nurses can benefit greatly from the evidence on early interventions and detection for childhood trauma. The results highlight the value of a comprehensive strategy that includes a range of intervention and detection techniques.

Based on our findings, there is a general opinion that childhood trauma has a significant impact on a child's life that affects not just health but every aspect of life. Findings from our study show that early detection and intervention could help manage and prevent the adverse effects of childhood trauma. With the appropriate early detection method, childhood trauma in children will be easily detected and with the appropriate intervention methods, the child will get the necessary help needed and fit to help overcome the impact of the trauma exposure.

7 CONCLUSION

7.1 Limitations and recommendations

This study has some limitations. The first limitation is the limited number of articles we used, this affects the validity of our literature review as findings and conclusions from a limited number of articles cannot be used in a broader context also we could not use articles not written in English and might contain important details for our review.

Secondly, we could not get any article to show how effective the present methods being used are for either detection or intervention. We could only get various methods that are either different or the same but there was no proof to determine the level of effectiveness of these methods which can be perfectly recommended to primary care nurses.

Lastly, during coding our findings to get the results, some useful information might have been lost. The lost data could be crucial for confirming our findings. and this affects the credibility of our research leading to gaps in our work that might prevent others from duplicating it.

More research is needed on determining early intervention or detection and how early intervention should be done for a better outcome. The identification of gaps in the current literature emphasizes the necessity of research, since little research has been conducted on the topic further research should be done on the topic for early intervention and detection for primary care nurses to detect childhood trauma.

7.2 Conclusion

In conclusion, childhood trauma affects millions of kids and teenagers globally, making it a significant public health issue. If trauma is not treated, the effects can be severe and long-lasting, resulting in a variety of mental health issues and even thoughts of suicide. To lessen these long-term impacts, childhood trauma must be identified early and treated.

Finding and helping children and teenagers who have been exposed to trauma is a crucial task for primary care nurses. But it's evident that for nurses to succeed in this position, they need better education and resources. Finding the finest practices and most successful solutions in this field will require further research.

This literature review offers useful insights into various interventions for childhood trauma, both in terms of early detection and intervention measures. Although the type and focus of these interventions differ, the main aim is to lessen the harmful effects of trauma and increase young survivors' resilience.

Based on our findings, primary care nurses should be trained more on early ways to detect trauma in children using some specific signs and symptoms which the children might present such as physical body cuts, bruises, lacerations, etc., their body reactions or specific emphasis being made on their body parts and language expressions which might suggest trauma.

Also, primary care nurses should offer and guide parents or caregivers on how to give gentle parenting care to children to have experienced trauma. Primary care nurses can also work together with other health care professionals to help keep children away from toxic environments to stop the reoccurrence of traumatic experiences.

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