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Low socioeconomic status (SES) as a predictor of post-traumatic stress disorder  
(PTSD) in children and adolescents: A scoping review

Angelique Slabbert

2190453040

Supervisor:

Dr. Sachet Valjee

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Master of Social Science (Counseling Psychology)

Department of Psychology

School of Applied Human Sciences

College of Humanities

University of KwaZulu-Natal, Howard College

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## Declaration of Originality

I, Angelique Slabbert, declare that:

1. The research reported in this study, except where otherwise indicated, is my original research.
2. This research study has not been submitted for any degree or examination at any other university.
3. This research study does not contain other person's data, pictures, graphs, or other information unless specifically acknowledged as being sourced by other persons.
4. This research study does not contain another person's writing unless specifically acknowledged as being sourced from other researchers.
5. Where other written sources have been quoted, then:
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6. APA 7 style formatting and referencing were used.

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Date:

9/10/2023

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I dedicate this dissertation:

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## TABLE OF CONTENTS

Declaration of Originality	i
Acknowledgments	ii
Abstract	x
Introduction	1
Early Life Traumatic Exposure in Low SES Communities	1
A South African Context	1
Operational Definitions	2
Socioeconomic status	2
Predictor	2
Post-Traumatic Stress Disorder	2
Children	3
Adolescents	3
A scoping review method	4
Literature Review and Problem Statement	6
Literature Review	6
Introduction	6
Nature and Scope of the Problem	6
Taxonomy of trauma and trauma assessment	9
Low socioeconomic status and its impact on mental health	13
Risk factors	15
Deprivation	15
Temperament	16

Parental supervision	17
Personal characteristics	17
The development of PTSD in vulnerable populations (children and adolescents)	18
Increased violent childhood exposure in Low SES communities	18
The role of memory in childhood	19
Maladaptation of the Stress response system in childhood	20
The role of beliefs during childhood	20
The role of appraisal during childhood	21
The developmental transition to adolescence	22
The role of puberty during adolescence	23
Collective traumatisation	24
A South African context	25
<i>Trauma Outcome of post-traumatic stress disorder (PTSD)</i>	25
PTSD prevalence rates	26
<i>A South African context</i>	26
Challenges in low SES settings	27
Problem Statement and Rationale for the Current Study	28
Methodology	30
Aim	30
Objectives	30
Research Design and Phases	30
Step 1: Identifying the research question	31

Step 2: Identifying relevant studies	31
Step 3: Study selection	33
Step 4: Charting the data	34
Step 5: Collating, summarising, and reporting the results	35
Step 1: Become familiar with the data	36
Step 2: Generate initial codes	36
Step 3: Search for themes	36
Step 4: Review themes	37
Step 5: Define themes	37
Step 6: Write-up	37
Search Strategy	38
Criteria for inclusion	40
Selection of Studies	41
Charting the Data	43
Collating, summarizing and reporting the results	44
Trustworthiness	46
Limitations	47
Results and Discussion	45
Introduction	45
Results	47
Number of publications per year	54
Titles	55

Aims and Objectives	55
Gender and age of participants	56
Location of reviewed studies	57
Study design and psychometric measures	58
Study Outcomes	61
Summary of Study Outcomes	62
Discussion	64
Participants, context, and concept of reviewed studies	64
Thematic analysis	67
Structural risk and protective factors	68
Parental instability	68
Internal and external resources	69
Increased interpersonal violence	70
Stages of development	72
Early life exposure	72
Transition to adolescence	73
Gender differences	75
Study Design	77
Quantitative methodological design	77
Limitations of reviewed studies	79
Study outcomes	81
Relationship between low SES and PTSD amongst children and adolescents	81

Conclusion, limitations, and recommendations	84
Conclusion	84
Limitations	86
Recommendations	89
References	91
Appendices	
Appendix A: Certificate of Editing	102
List of Tables	viii
List of Figures	ix

**LIST OF TABLES**

<b>Table 1.</b> <i>Key search words using PCC elements</i>	33
<b>Table 2.</b> <i>Charting of data using a narrative review approach</i>	35
<b>Table 3.</b> <i>Search strategies and yields for electronic databases</i>	39
<b>Table 4.</b> <i>Inclusion and exclusion criteria</i>	40
<b>Table 5.</b> <i>Charting of the extracted data</i>	47
<b>Table 6.</b> <i>Thematic analysis coding of reviewed articles</i>	52
<b>Table 7.</b> <i>Theme one and sub-themes</i>	68
<b>Table 8.</b> <i>Theme two and sub-themes</i>	72
<b>Table 9.</b> <i>Theme three and sub-themes</i>	75
<b>Table 10.</b> <i>Study design</i>	77
<b>Table 11.</b> <i>Study outcomes</i>	81

**LIST OF FIGURES**

<b>Figure 1.</b> <i>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)</i>	34
<b>Figure 2.</b> <i>PRISMA flowchart of the study selection process.</i>	42
<b>Figure 3.</b> <i>Number of publications per year</i>	54
<b>Figure 4.</b> <i>Titles</i>	55
<b>Figure 5.</b> <i>Aims and Objectives</i>	56
<b>Figure 6.</b> <i>Gender of the population</i>	57
<b>Figure 7.</b> <i>Ages of population</i>	57
<b>Figure 8.</b> <i>Location of reviewed studies</i>	58
<b>Figure 9.</b> <i>Methodological study design</i>	59
<b>Figure 10.</b> <i>Trauma psychometric measures</i>	60
<b>Figure 11.</b> <i>Sociodemographic measures</i>	61
<b>Figure 12.</b> <i>Study outcomes</i>	63

## **Abstract**

Childhood trauma presents potential lifelong consequences for health and well-being. Research indicates that those with low socioeconomic status (SES) are disproportionately exposed to trauma and that childhood victimisation is associated with a higher risk for mental health problems. Existing literature in this field has predominantly focused on quantitative analysis and the adult population. There is a scarcity of research analysing the role low SES plays in the outcome of PTSD (Post-traumatic stress disorder) amongst children and adolescents within a low socioeconomic context. This study aimed to map and comprehensively analyse studies investigating low socioeconomic status as a predicting variable of PTSD among children and adolescents to generate insight and establish areas for future research. The present study was qualitative and utilised Kira's taxonomy of trauma and assessment theory to support the objectives (Kira, 2001). A scoping review method was used guided by Arksey and O'Malley (2005). The search period was from 2012 to 2022. The search strategy for this scoping review used two electronic platforms, Ebscohost and Wiley, which provided access to the following databases: Academic search complete, APA Psychinfo, APA Psycharticles, Medline, and ERIC. The researcher screened all studies independently, and an external reviewer evaluated eligible articles. Charting the data involved synthesising and interpreting data according to key issues using a table format.

Further analysis included descriptive statistics and thematic content analysis. Five prominent themes were developed: 1) structural risk/protective factors, 2) stages of development, 3) gender differences, 4) study design, and 5) study outcomes. The findings of this study illustrated a positive relationship between low SES and PTSD by identifying that low SES increased the chance of developing PTSD due to situational factors (early life exposure), negatively impacting

the cognitive appraisals of a child. Contextual factors (types of SES indicators), such as parental instability, increased interpersonal violence, and scarce resources, further perpetuate the cycle of poverty and traumatic exposure. The study also identified crucial gaps in the literature, such as the need for qualitative/mixed methods and longitudinal research studies and the need for standardised low SES measures, among others, which could inform future research about the incremental validity of SES measures when determining a complete child or adolescent victimisation profile.

## **Introduction**

### **Early Life Traumatic Exposure in Low SES Communities**

According to the literature, childhood trauma presents potential lifelong consequences on health and well-being (Campbell, 2020). Exposure to violence among children and adolescents is due to individual factors, such as impulsivity and existing mental health problems, and environmental factors, such as living in low-income, urban settings or disorganised communities (Gershon, 2018). There is compelling literature indicating that people in low socioeconomic status settings are disproportionately exposed to trauma, and that childhood victimisation is associated with a higher risk of developing mental health problems (Gershon, 2018). Evidence also suggests that those who experience one traumatic incident will likely experience repeated victimisation and trauma (Gershon, 2018). Although many studies have documented this phenomenon in adults, minimal research has been conducted on children and youth. Children and adolescents in communities worldwide face many adversities, especially in low-income areas with scarce resources and limited healthcare options (Campbell, 2020). They also experience education deficits, housing instability, justice system involvement, and underemployment. Exposure to violence or traumatic events then magnifies the existing stress and negatively impacts children long-term, potentially creating a cycle of trauma (Campbell, 2020).

### **A South African Context**

South Africa perpetuates the previously mentioned cycle of trauma due to its history of racial and political violence, which created an atmosphere that exposed and continues to expose individuals to traumatic events due to social inequity and economic disparity (Atwoli et al., 2015). These events' physical and psychological impact on adults in South Africa has been widely explored. However, adolescents and children remain under-researched. Findings from the South

African Stress and Health Study (SASH) have demonstrated a high prevalence of trauma throughout the country, with three in four South Africans experiencing at least one traumatic event per year (Atwoli et al., 2015). Research suggests witnessing a traumatic event increases the risk of developing post-traumatic stress disorder (PTSD) (Atwoli et al., 2015). Therefore, it is critical to investigate the role of low SES in developing PTSD in the vulnerable child and adolescent population.

## **Operational Definitions**

### ***Socioeconomic status***

Socioeconomic status (SES) is the combined economic and social measure of an individual's position in relation to others based on factors such as income, education, occupation, and place of residence. However, SES is more commonly used to describe an economic difference in society usually in terms of levels high, middle, and low levels. Low SES is also described as poverty, often with consequences related to privilege, power, and control (Worthy et al., 2020).

### ***Predictor***

The term predictor stands as a predicting variable, which can be referred to as a variable used to predict a possible future outcome based on given circumstances and known information. The term predictor variable refers to an independent variable used in regression analysis. The term comes from an area of applied mathematics that uses probability theory to estimate future outcomes based on collected quantitative evidence (Allen, 2010).

### ***Post-Traumatic Stress Disorder***

PTSD is a trauma and stressor-related psychological disorder that may result from witnessing or experiencing an event threatening the person's life (American Psychiatric Association, 2013). Most people experience some symptoms after traumatic exposure, but not all

individuals will develop chronic PTSD. PTSD involves a series of symptoms that are characterised by (a) intrusion symptoms such as reexperiencing the trauma in flashbacks or recurrent dreams or nightmares; (b) avoidance of activities that remind the individual of the event, (c) negative changes in thoughts and mood as well as changes in arousal and reactivity such as disturbed sleep, difficulty in concentrating or remembering, and guilt. There are various subtypes, such as acute, delayed, dissociative, and complex PTSD. For children under six different criteria are required to meet a PTSD diagnosis (American Psychiatric Association, 2013). Chronic PTSD symptoms last longer than four weeks. Certain *risk factors* make a person more likely to develop PTSD, such as limited social support, repeated exposure, and a history of mental illness. Other factors, such as *resilience factors*, can help reduce the risk of the disorder (American Psychiatric Association, 2013).

### ***Children***

Childhood refers to the period between infancy (two years of age), and the onset of puberty, marking the beginning of adolescence (10–12 years). This period is sometimes further divided into early childhood (2-5 years), middle childhood (6-8 years), and late childhood or preadolescence (9-12 years) (Meriem et al., 2020).

### ***Adolescents***

Adolescence is the period from the onset of puberty until an individual reaches a level of adult-like independence (18-19 years of age) (Somerville, 2013). This stage of life is essential for physical, cognitive, and psychosocial growth (Jaworska, 2015).

In many studies, low SES has been viewed as a discrete variable in the trauma outcome of PTSD amongst adolescents. Even though there has been an increased interest in the impact of violence on children, a limited number of studies have explored traumatic exposure and children living in low SES environments (APA, 2010).

Because SES is considered a reliable predictor of extensive outcomes, significantly impacting physical and psychological health, this study provides an opportunity to consolidate research within this area.

### **A Scoping Review Method**

A scoping review method is best suited for this study because the main aim of scoping reviews is to map existing literature on a topic, synthesise the data captured, establish key concepts, and identify possible gaps within an area of research (Peters et al., 2015). These aims are aligned with the aims and objectives of the present study, as opposed to systematic reviews. Systematic reviews aim to identify or confirm practices and dispute conflicting outcomes to support decision-making processes (Munn et al., 2018). It is evident that these aims are not well-aligned with the aims of the present study, and therefore, a scoping review was chosen as the data collection method.

This scoping review aims to map and synthesise studies investigating low socioeconomic status as a predicting variable of PTSD among children and adolescents. According to Seedat and Suliman (2018), PTSD estimates are high in low- and middle-income countries (LMIC). Children and adolescents facing poverty are more likely to experience hostile environments, violence, abuse, and discrimination. Low socioeconomic status is associated with increased trauma exposure and distress. In addition, these areas' healthcare facilities and necessary resources are limited, inaccessible, or depleted. Consequently, in LMIC countries such as South Africa, PTSD has become a public health concern (Edwards, 2005). Therefore, it is critical to investigate whether low socioeconomic status stands as a predicting variable for the development of PTSD, to identify which associated factors give rise to this outcome amongst a vulnerable population of children and

adolescents, and to identify gaps in the literature that may inform future research regarding children's victimisation profiles.

## **Literature Review and Problem Statement**

### **Literature Review**

#### ***Introduction***

This chapter reviews the extent of literature on the trends of Low Socioeconomic status (SES) as a predictor of the trauma outcome, post-traumatic stress disorder (PTSD) among child and adolescent populations. This chapter will further highlight the nature and scope of the problem and will conclude with a rationale for the present study. A review of relevant literature regarding the predictive relationship between low SES and PTSD among child and adolescent populations will be guided by a review of the following areas, which are central to the present study: identifying and understanding the nature and scope of the problem that this study aims to investigate, making reference to Kira's taxonomy of trauma theory and trauma assessment, exploring low SES and its impact on mental health outcomes in general, and then focusing on risk factors contributing to these outcomes, structural trauma and its developmental effects, followed by the trauma outcome, PTSD and treatment availability, drawing from examples worldwide and nationally (Kira, 2001). As there is limited literature in this area of study, this scoping review aims to investigate and map the literature on this particular research area and provide an opportunity to identify key concepts, gaps in the literature, and the types and sources of evidence to inform practice and future research. These will be reflected as themes in chapter 4, section 4.3 (discussion).

#### ***Nature and Scope of the Problem***

Socioeconomic inequalities and mental health are equally important topics in their fields and are relevant in today's politics, social sciences, human sciences, and public health (Reiss, 2013). According to social scientists, mental health is shaped by the qualities and inequalities of

our surrounding environments. Thus, understanding the relationship between these two concepts is vital (Reiss, 2013).

Studies have found a significant relationship between socioeconomic status (SES) and mental health. High SES is associated with less mental health risk, while low SES is associated with more mental health problems (Reiss et al., 2019). Individuals with low SES are at a higher risk because they are exposed to more stressful life situations and traumatic events such as interpersonal violence, childhood maltreatment and sexual assault (Springer et al., 2003). Low SES is also related to repeated exposure to these events and, thus, a higher risk of developing psychiatric disorders (Bradley-Davino & Ruglass, 2020). Children are especially vulnerable and more susceptible to repeated exposure throughout their lifetime, and greatly associated with the development of numerous psychiatric disorders, the most prevalent being post-traumatic stress disorder (PTSD) (Lewis et al., 2019). More recently Complex Post Traumatic Stress Disorder (CPTSD) has been noted (Finkelhor, 2008).

Studies conducted between the '80s and '90s reported that 36 percent of children exposed to traumatic events may develop PTSD. In contrast, a meta-analysis of studies between the 90s-2000s found that 16 percent of children and adolescents may develop PTSD (Stupar et al., 2021). However, it is known that not all children and adolescents develop the full expression of PTSD after traumatic exposure. They might only experience some symptoms listed in the Diagnostic Statistical Manual (DSM-5) and therefore meet the sub-threshold of PTSD called post-traumatic stress symptomatology (PTSS) (Swain et al., 2017). Further to this, it has become clear that some patients, who have been exposed to repeated traumatic events over their lifespan, demonstrate additional symptoms to those listed in the definition of PTSD. Such symptoms include affect-dysregulation, dissociation, somatisation, and aggression. As part of the DSM-IV field trial,

members categorised these complex symptom patients under ‘Complex PTSD’ (CPTSD) or ‘disorders of extreme stress otherwise not specified’ (DESNOS). Currently, CPTSD symptoms are captured in the associated features of PTSD in the DSM-V. However, there has been a growing argument and mounting evidence to support the inclusion of CPTSD as a separate diagnostic condition (Van der Kolk, 2000).

Post-traumatic stress disorder can be defined as the inability to recover after experiencing or witnessing a terrifying event (Foa et al., 1999). Although low SES may predispose children and adolescents to more traumatic exposure, it may also have an impact on their development and thus disrupt the recovery process after a traumatic event, leading to PTSD (Foa et al., 1999). A recent study demonstrated PTSD to be significantly higher among children and adolescents in low- and middle-income countries (LMICs) than in high-income countries ranging from 0.2 to 87 percent (Stupar et al., 2021). Some studies have also found the results and symptoms of PTSD amongst those living in low SES to be very similar to those living in actual war zones (Stupar et al., 2021). It is evident that low SES plays a significant role in the development of PTSD and that repeated exposure to traumatic events, such as crime, domestic violence, and community violence, may yield the same results as that of war.

In many studies, low SES has been viewed as a discrete variable in the trauma outcome of PTSD among adolescents. Although there has been an increasing interest in the effects of violence on children, minimal research has been conducted on children living in low SES environments. As SES is seen as a reliable predictor of a vast array of outcomes across the lifespan, including physical and psychological health, this study proposes one of those outcomes to be PTSD (APA, 2010). Therefore, this research study proposes the need to move beyond the notion of low SES as a moderating variable and toward conceptualising it as a predictive variable. Low SES

environments place children at a greater risk of experiencing increased levels of violence and the lack of resources to deal with its repercussions. Viewing low SES as a predictive variable of trauma for these children could inform future-based interventions within these environments. This will be done by reviewing the literature through the lens of Abraham Aref Kira's theory (2001), the taxonomy of trauma, and trauma assessments, which will allow comprehension, organisation and conceptualisation of the type of trauma that low SES comprises, plus viewing low SES as a predictive variable of PTSD.

### ***Taxonomy of trauma and trauma assessment***

Kira's taxonomy of trauma theory (2001) reviews the theory of trauma as a special case of stress response theory. The taxonomy provides a pattern of organisation that assists in understanding traumatic exposure, and its related specific and potential effects on the various areas of functioning in the different stages of development. It is, therefore, a theoretical framework that will facilitate exploration and understanding of trauma as a result of low SES and its related effects on various areas of children's and adolescents' functioning during the different stages of their development.

By looking at the Diathesis-stress model, it is understood that each person has a degree of vulnerability or threshold. A minor stressor may trigger symptoms in a vulnerable person, whereas only major disastrous events may yield a similar result in a non-vulnerable person (Zuckerman, 1999). It is also possible that additive effects of several stressors can produce trauma-like symptoms in a non-vulnerable person, such as CPTSD or what Kira (2001) refers to as Type III trauma. For example, a mother's abandonment of an infant who has not yet developed a secure self-processing structure, termed traumatogenic exposure, would yield a different result if an older child, teen, or adult experienced maternal abandonment. Therefore, it is vital to consider the

developmental phase of the victim, as trauma impacts development. Further, much controversy exists about the dynamics of the stress response, such as the contribution variance of genetic factors versus environmental stressors; the interaction between the two is highly complex.

According to Kira (2001), trauma theory is a special case of stress response theory, as traumatic events are no longer regular life stressors but severe, out-of-the-ordinary, unexpected, and uncontrollable events. Kira (1997) argues that humans are value processors, which means they develop a value-processing system that controls the unconscious appraisal of an event and the activation or inhibition of emotional and cognitive processing and their arousal and action response (Kira, 1997). To expand, factorial studies of the structure of value processing have found five cross-culturally relative factors that represent human functioning. These include attachment, individuation, interdependence, performance, and flexibility/survival (Kira, 1997, 2001). Further theories and research on psychodynamics and lifespan development contribute to the credibility of this empirical classification of individual functioning.

It is important to understand how a value processing system is developed and impacted by traumatic events to apply the taxonomy of trauma to this review. Kira (2001) describes humans as biosocial organisms with unique combinations of genes, personal values, and self-structures that mediate the psycho-physiological reactions to environmental stressors and traumas. Trauma or traumatic exposure causes physiological changes in the central and peripheral nervous system that regulates the whole physiological interaction and overall body functioning. General life experiences contribute to shaping the structures of an individual's value processing system through his development from infant to adult. However, unexpected traumatic events contribute more to the hindrance or creation of a more developed self-system that can cope with unexpected experiences. Moreover, it can also disrupt the course of value and self-system development in

childhood. Therefore, the pre-event processing system directs the interaction between the internal (genes, psychological flexibility, neurological systems, physiological and hormonal) and the external (environmental stressors and traumatic events).

Kira's (2001) research aimed to create a tenable classification of traumatic events that can disrupt, restore, or reinforce existing or newly forming self-processing structures. Kira (2001) suggests a taxonomy based on two trauma categories based on earlier analyses of trauma dynamics, research on child development, and therapeutic practice experience. The first classification is based on subjective experiences and developmental theories. It includes the following aspects influenced by trauma – attachment, individuation or identity, collective interdependence, indirect or secondary trauma, self-actualisation, and physical survival. The second group, which covers cumulative stress trauma, internal trauma, man-made trauma, and nature-caused trauma, is more based on the objective qualities of the traumatogenic events.

Man-made traumas further include person-made traumas and socially-made trauma. Person-made traumas include single-episode trauma Type I (car accident and complex traumas). Complex traumas include Type II (repeated similar traumatic episodes that ceased) and Type III (repeated and ongoing). Type IV is CT. Complex trauma is a sequence of similar or dissimilar traumas that happen to the individual across the lifespan. Then, you get socially-made trauma, which is a transmitted trauma. This transmission course is either one step (from parent to child or vice versa) or cross-generational transmission (multiple steps). There are two kinds of cross-generational transmissions. The first is within a family, such as family violence, and the second happens in a collective setting which is also divided into two types: historical trauma, such as genocide, and social/structural trauma. The two classifications complement each other in assessing a client's traumatic exposures across his life span.

As the taxonomy of trauma is an organisation of trauma types, it is evident that this review falls within structural trauma as it comprises extreme social disparities. Kira (2001) further expands on structural trauma and defines it as a result of deprived social structures and classes. Structural trauma includes poverty, biologically induced traumas such as prolonged malnutrition, inadequate shelter and medical care, unemployment, and underemployment. These factors are not only rife in areas of low SES but also cause outcomes such as parental insecurity; overwork and fatigue and accompanying irritability; limited bonding time; illnesses; and chronic ongoing threats to security. It leads to overwhelming children and adolescents' sense of survival and can disrupt children's value processing in all areas of functioning (Schwebel, 1998). This can also contribute to the kinds of conduct problems that are more prevalent in such social structures.

Parents' deprivation, demoralisation, and poverty significantly impact on future generations. When McLoyd (1998) reviewed the research on socioeconomic disadvantage and child development, she found that after adjusting for a variety of parent and family traits, family poverty, low SES, and living in a less affluent area all independently predicted lower scores on intelligence and cognitive functioning tests, lower levels of school achievement, and higher levels of socio-emotional problems. Even for people who do not appear to have any visible organic learning difficulties, poverty seems to be a limitation of intellectual growth and a source of educational deprivation. This deprivation predisposes children and adolescents biologically to succumb to trauma-related events and, thus a higher risk of developing PTSD. Structural violence has terrible and long-lasting effects on all generations, directly and indirectly. Unfortunately, due to these structural conditions' longevity and consequences, people are accustomed to seeing others endure such structural traumas and consider their condition a natural part of society (see Schwebel, 1998). Community leaders, activists, legislators, and clinicians all have a role in addressing the

system's structural violence. According to Schwebel (1998), systemic interdisciplinary interventions are required to stop structural violence and to minimize the likelihood of PTSD in future low SES generations.

### ***Low socioeconomic status and its impact on mental health***

According to the World Health Organization, mental health problems have become a growing public issue worldwide, as 25% of individuals develop a mental disorder during their lifetime. Social inequality has become an increasingly popular topic worldwide in politics and social sciences due to the growing gap between socioeconomically advantaged and disadvantaged groups. These debates have led to the reproduction of social disparities across society, decreasing social mobility opportunities within different population groups (Reiss, 2013). Socioeconomic status is a multifaceted construct representing the relative ranking of a group's social and economic resources. Multiple indicators measure social inequalities, such as income, occupation, education, wealth, neighbourhood deprivation, subjective perceptions of social status, and social class (Strickhouser & Sutin, 2019). Undoubtedly socioeconomic status (SES) affects all areas of social life and involves the quality of life attributes and opportunities and privileges granted to people within society, such as access to healthcare and resources. Studies have also shown that socioeconomic inequalities deeply impact health status and behaviour.

Poverty is not seen as a single factor but is marked by multiple physical and psychosocial stressors, as living in poverty makes one more susceptible to experiencing adverse events, such as community and domestic violence. One of the first studies to conduct such research found an inverse relationship between SES and mental illness, showing disproportionate rates of mental illness in the poorest parts of Chicago (Faris & Dunham, 1939). This is further supported by studies conducted in the US, which found higher mortality and morbidity rates among those with low SES

compared to the higher SES populations. Of 15 non-US studies, 10 reported similar findings (Hudson, 2005). A review conducted in the 1980s found this result to be standard regardless of the type of SES indicator used. During the 1990s, research on low SES and mental illness accelerated focusing mainly on longitudinal studies and causal relationships. However, findings from this wave of research were increasingly mixed. In contrast, Piko & Fitzpatrick (2001) concluded that classical SES indicators were not significant predictors of psychosocial health and found subjective SES to be the strongest predictor of mental health-related illnesses.

Other studies concluded that social selection may be necessary in explaining SES and mental health-related problems. The geographic drift hypothesis suggests that existing mentally ill people gravitate towards low-income communities due to their mental status, although this might also be due to low living costs. This was strongly supported in a study by Dembling et al. (2002), which examined migration patterns of psychiatric patients for a duration of 18 years. However, the effect was more modest than the research narrative, as just over half of the population moved to lower socioeconomic environments. As a possibility, those with mental illness are already predisposed and more susceptible to succumb to the effects of traumatic exposures. As explained by Kira's taxonomy of trauma theory (2001), children and adolescents who are already vulnerable have a higher risk of developing PTSD-related symptoms than those less vulnerable.

By reviewing the literature for this study, it has become evident that the relationship between SES and adulthood has been well documented. However, very little has been researched among the younger populations. Due to the nature of the development and vulnerability of children and teenagers, it is vital to research the impact of low SES on their mental health to improve their understanding of the interactions between the internal and external environments. It is also essential to pinpoint risk factors involved with developing trauma outcomes such as PTSD, as not

all children and teenagers experience these outcomes. As explained by Kira (2001) some value processing systems tend to strengthen throughout their lifespan and become less vulnerable to developing PTSD. Therefore, by identifying risk factors that increase their chances of developing PTSD, we also highlight intervention pathways.

### ***Risk factors***

To effectively reduce the public health burden associated with PTSD, it is important to understand who is most susceptible to experiencing trauma and acquiring PTSD. Trauma is a necessary but insufficient factor in the onset of PTSD, meaning that not everyone who encounters trauma will go on to experience the disorder. Although factors such as the type of trauma and level of threat remain the greatest risk factors for developing PTSD, other pre- and peri-trauma characteristics are also responsible for higher PTSD risk, including the level of social support around the time of the trauma, pre-existing mental illness in the family, history of mental disorder, and lower cognitive ability, all of which are more prevalent in low SES environments (Staniaszek et al., 2022). Further, Piko and Fitzpatrick (2001) conducted research that focused on detecting relationships between specific SES indicators and psychosocial health. Their results included the following: classical conditions such as manual/non-manual occupational class and schooling were not good predictors of adolescent mental health, whereas SES self-assessment, parent's employment status, and sociodemographic proved significant. Research over the past decade has examined several potential pathways through which SES influences one's health, with the most frequent being behavioural risk factors such as substance use and abuse, smoking, and diet.

**Deprivation.** Other risk factors include limited access to resources, like medical health care, food, transport, and health knowledge, which is most often the reality of those living in low SES environments. It is established that this type of deprivation profoundly impacts health and

mental health, such as an endocrine response known to induce anxiety and depression. Further, Mcloyd (1998) describes deprivation of resources as leading to lower scores on intelligence and higher scores on socio-emotional problems. This deprivation predisposes children and adolescents biologically, and as a result, they often endure more trauma-related events, which could lead to traumatic outcomes. Further existing mental health illnesses are another biological risk factor predisposing individuals to more prominent emotional reactivity. This may be the result of genetic factors, as there is compelling evidence that those who have a higher genetic risk for other mental diseases, such as schizophrenia, bipolar disorder, and major depressive disorder, are also at a higher genetic risk of developing PTSD after traumatic exposure (Cornelis et al., 2010).

**Temperament.** According to Strickhouser and Sutin (2019), different temperament develops during childhood due to environmental factors, such as SES. These different temperaments yield different outcomes in mental health, substance use, peer relations, academic performance, and adult personality. Although temperament and personality are mostly seen as predicting variables of future outcomes, they develop and change across the lifespan in response to genetic and environmental factors. For example, lower parental income predicted less positive emotionality, less constraint, and showed a less resilient temperament. Low maternal education predicts irritability, fear, less effortful control, and an under-controlled temperament in children.

Current research shows a repeated finding of the relationship between temperament and the development of PTSD (Strickhouser & Sutin, 2019). Children with more difficult temperaments are more likely to elicit negative parenting and develop behavioral problems, including drug use, joining gangs, and engaging in criminal activities. Therefore, associations with temperament and PTSD might result from greater exposure to traumas, especially in a trauma-promoting environment such as low SES. Further, high levels of negative emotionality have been

associated with an increased risk of developing psychiatric symptoms after interpersonal violence. Thus, temperament might modify the effects of trauma on PTSD.

**Parental supervision.** Another risk factor is poor parental supervision. In 2019 the Human Sciences Research Council (HSRC) and the South African Race Relations Institute (SARRI) found that 60% of South African children have absent fathers and more than 40% of South African mothers are single parents. Compared with 25% in the US and a developed world average of just 15%, it is quite significant. According to StatsSA, in 2018 a substantial portion of young children (46%) lived with their single mother, and 2% with their single father. In 2020, 71% of children from female-headed households were multi-dimensionally poor compared to 54% from male-headed households. In addition, research shows that children who grow up in fatherless homes are more likely to experience psychiatric problems and display aggression and other hyper-masculine behaviours, which increases their risk for unhealthy relationships, high-risk sexual behaviours, crime, joining gangs, dropping out of school, and addiction. Due to the nature of these activities, children are exposed to repeated diseases, violence, and crime, all of which are traumatic experiences. Therefore, less parental supervision increases the risk of children and adolescents developing PTSD.

**Personal characteristics.** In addition, studies propose personal characteristics of individuals as risk factors for remaining in poverty and being negatively impacted by it, such as poor internal and external control, self-efficiency, coherence, hardiness, and coping styles. Evidence also suggests that lower SES persons perceive themselves as less in control of external events and that such beliefs are associated with poorer health. This indicates that these beliefs may create a more vulnerable person whose value processing systems may be susceptible to disruption or distortion by structural events or traumatic experiences and may therefore result

in higher chances of developing trauma-related conditions such as PTSD. This suggests the inclusion of subjective SES as an indicator, as attitudes and beliefs play a big role in value-processing systems as well as the development and recovery of trauma-related consequences such as PTSD. Consequently, understanding the susceptibility to mental health difficulties and PTSD conferred by SES risk factors is vital to inform prevention, and target public health efforts to minimise future adverse impacts.

***The development of PTSD in vulnerable populations (children and adolescents)***

**Increased violent childhood exposure in Low SES communities.** Research has repeatedly shown that individuals living in lower SES environments are faring significantly worse mental health than those in higher counterparts. This observation has been observed from the age of four (Amone-Polak et al., 2009). Further, according to national statistics, the first five years of life have the highest incidence of child maltreatment. Large numbers of children in the U.S. are subject to violent exposure, with estimates ranging from 50-75% within their communities, homes, and schools (Gollub et al., 2019). Multiple studies demonstrate that school-aged children experience symptoms of depression, anxiety, and aggressive behaviour due to neighbourhood and familial violence. These percentages are much higher in community studies of children in urban areas and low SES. Although exposure to violence affects all SES groups and ages, it has been found that low SES children are more than twice as likely to be exposed to three or more traumatic experiences than their high SES peers (Gollub et al., 2019). In a recent study conducted in New Orleans, all children reported physical aggression, while 35 percent reported violent exposure. When exposed to chronic community violence, children often demonstrate symptoms of PTSD. This is supported by a study conducted in Washington, where children aged 6-10 reported a significant link between violence exposure and experiencing symptoms of PTSD (Osofsky, 1999).

Further, research has shown a consistent association between childhood trauma and adverse health consequences into adulthood.

**The role of memory in childhood.** When reviewing the literature on this topic, it was clear that much research was conducted on adults, but not children. This may be due to the assumption that children are too young to process and remember traumatic events (Cordan, 2004). Yet, a case study and discussion conducted by Kaplow (2006) explores the different memory systems related to childhood traumatic exposure: the explicit and implicit. The explicit memory system is built to remember events, facts, and details and is highly associated with language. In contrast, the implicit emotional system seems to recall the emotional valence of events without contextual information and is largely responsible for the individual's response to threats (flight/fight mode). Kaplow (2006) further explains that these two systems are highly coordinated until exposed to a stressful/traumatic event, causing an uncoupling. This prompts individuals to feel a certain way without knowing why. Although these memories will no longer be consciously accessible, they still exist and will continue to influence behaviours and emotions. Therefore, it is argued that we should rather assume that the younger the exposure, the higher the risk for long-term traumatic effects (Kaplow, 2006).

Often children don't recall an event until exposed to a similar situation or context to the original trauma. This can be explained by situationally accessible memories, where memories cannot be accessed deliberately but may resurface only when confronted with a reminder (Kaplow, 2006). It is also noteworthy to acknowledge the research done by Rovee-Collier (1997), who found perception and explicit memory details to be much better in infants as young as 9 months than in adults. This phenomenon is called perceptual narrowing, which may increase a child's probability of developing PTSD. Other existing studies also indicate a clear link between infant/toddler

development, exposure to traumatic events, and emotional/behavioural problems. According to them, early-life traumatic exposure leads to high irritability, sleep disruptions, separation anxiety, immaturity, and regression of certain developmental stages, such as potty training and the use of language (Osofsky, 1999). Therefore, it is vital to consider the developmental phase of the victim, as trauma deeply impacts development. Further, this may disrupt the recovery process from traumatic exposure, which may lead to the development of PTSD.

**Maladaptation of the Stress response system in childhood.** According to Bradly-Davino and Ruglass (2020), children from economically disadvantaged backgrounds often develop a ‘toxic stress response’ in reaction to repeated traumatic exposure. He further explains that due to inadequate support and lack of access to necessary resources within low socioeconomic communities, children may undergo maladaptive activation in their stress response system which leads to further alteration in both their hormonal balance and brain structure. Overall trauma exposure places a child at increased risk for delayed development physiologically, mentally, and emotionally. This maladaptive activation may play a role, induced by socioeconomic disadvantage, for the development of PTSS or PTSD later in life, along with common comorbid psychological disorders such as depression and anxiety disorders.

**The role of beliefs during childhood.** In addition, traumatic exposure, especially in a ‘safe space’ such as family trauma is known to disrupt the very important development of trust within a child (Osofsky, 1999). This plays an important part in the development of their autonomy, relationships with others, and outlook on the world. According to Osofsky (2013), one of the main difficulties experienced by these children in classrooms is difficulty in concentration due to intrusive thoughts. These repeated intrusive thoughts may solidify the alteration of their beliefs, behavior, and outlook on the world. These thoughts have a great impact not only on the child’s

school functioning but their cognitive development and may distort or hinder their self-value processing system, which may serve as another pathway, if not a symptom, of the maladaptive stress response for the development of PTSD.

Epstein's theory supports this notion as he hypothesises four core beliefs to change due to traumatic exposure. Mccann and Pearlman (1990) further suggest that traumatic events disrupt the following beliefs: safety, power, trust, esteem, and intimacy. These beliefs form the foundation of how children come to see and understand their world and might be responsible for the development of PTSD if negatively altered. This is further explained by Foa et al. (1998) by proposing two basic dysfunctional cognitions that mediate the development of PTSD: the world is completely dangerous or safe, and one is incompetent or competent. These rigid cognitions are either altered by traumatic events or confirmed. Therefore, these rigid concepts about the self and the world render individuals vulnerable to PTSD, especially children who are still developing, and thus limited in their psychological flexibility (Foa et al., 1998).

**The role of appraisal during childhood.** Another important cognitive function to consider, according to Ehlers et al. (1995), is the personal meaning or appraisal of the trauma, as individuals with persistent PTSD have been characterised by negative cognitive appraisals and/or its sequelae. It is, therefore, understood that negative personal appraisals maintain PTSD by constructing a current sense of threat, along with intrusions, arousal, and strong negative emotions. Children are less likely to develop positive cognitive appraisals of a traumatic event, because they may be too aware of the intentionality of the violence and worry about what they could have done to prevent it (Osofsky, 1999). With the lack of access to necessary resources and guidance to change this cognitive appraisal, persistent PTSD may result. In addition, these appraisals induce cognitive and behavioural dysfunctions that may reduce distress short term but maintain PTSD

long term, especially in older populations, and result in complex PTSD. These results align with a growing body of research and clinical evidence about the prevalence of mental health disorders in the earliest years of life. Creating and implementing early interventions and promoting future trauma-focused treatments for this age group is crucial.

**The developmental transition to adolescence.** Adolescence is a critical developmental period in terms of mental health and physical health. Adolescents exposed to trauma often have negative behavioural and physical growth consequences. Most research within this area has been conducted on adults, with limited studies focusing on adolescents. The few that have been conducted yielded conflicting results. Some show life stressors as a mediating variable. In contrast, others show SES as a mediating variable of mental health outcomes. As mentioned above, life stressors are considered one of the most significant risk factors for developing pathology. Low SES persons experience more life stressors due to the nature of their environments (Amone-Polak et al., 2009). Therefore, it can be argued that low SES promotes environments with higher densities of proximal risk factors and increases the severity and intensity of life stressors related to mental health problems, including PTSD.

Poor mental health is one of the leading causes of lost life years among adolescents (Hazel & Thorton et al., 2022). According to Hazel et al. (2022), adolescents are key when studying how mental health conditions develop due to socio-economic disparities, as half of all lifelong mental health issues are present by age 14. These difficulties cause lifelong issues as they impact every aspect of life, such as school completion rates and social and occupational skills. This, in turn, has a negative outcome for later years, making individuals more vulnerable to marital and emotional problems. Adolescence is a vital period of developmental transition and is characterised by

dramatic changes in physiological and neuroendocrine systems, along with the reorganisation of neural systems subserving executive function, socioemotional processing, and emotion regulation.

However, very little is known about the neurobiology of adolescent PTSD and how treatments may alter neurodevelopment to allow recovery from such a state, compared to the vast amount of information available on adults (Cisler & Herringa, 2021). Understanding the neurobiological impact that PTSD has on adolescents, will enable us the possibility the vulnerability of early life exposure and give us insight into the interventions and treatments needed to minimise the outcome of such events. PTSD is best viewed as a constellation of cognitive, emotional, and biological systems that most commonly implicate the neurodevelopmental and emotional regulation systems (Cisler & Herringa, 2021).

**The role of puberty during adolescence.** One explanation for the sudden rise in affective disorders in adolescence, including PTSD, is assumed to be the onset of puberty, which is linked to altered subcortical areas' receptivity to emotional stimuli. In addition, the frontoparietal regions responsible for cognitive control and emotion regulation develop more slowly than other systems (Cisler & Herringa, 2021). Therefore, research suggests abnormal frontolimbic development in those with PTSD compared to typically developing youth. Further, increased traumatic exposure might also be explained by the increased drive to socially reorient to peers and engage in social risk-taking behaviors. It is also known that sex hormones influence the development of cognitive-emotional interactions, which may contribute to the greater PTSD prevalence (2-3 fold) in adolescent females compared to males. The research proposes that while adolescent PTSD is very similar to that of adult PTSD, adolescents show unique neurodevelopmental substrates that may impair their recovery. The identification of these substrates could be used as a target in the context of adolescent neuroplasticity to improve outcomes (Cisler & Herringa, 2021).

In addition to neurodevelopmental changes, parental influence decreases, self-autonomy increases, and adolescents try to develop independent lifestyles, which may positively or negatively impact their health. Most adolescent studies find little significant differences in social class and morbidity rates compared to children. An extensive literature review suggested that adolescents experience a period of ‘relative SES equality’ which results in few health consequences. These studies concluded that this equalisation, although evident during adolescence, is not apparent across all life stages. Similarly, research in the U.S has revealed that this population experiences a similar rate of trauma to the general population, as the PTSD rate for 17-18-year-olds was 7% while 13–14-year-olds was 4%. Therefore, the research found that the rate of PTSD increases with age (Carbone et al., 2019). In opposition, Stupar et al (2021) results show that younger ages predicted a higher chance of developing PTSD, showcasing the conflicting evidence regarding the role of SES and its mental and physical health consequences in adolescents.

**Collective traumatisation.** Individuals from these low SES backgrounds experience more threatening and demanding environments, which may impact their emotional states and inhibit them from developing positive expectations about their future. According to a study conducted in Chicago, 85% of youth reported witnessing a violent act, similar to a Midwest urban school where 75% reported seeing or hearing gunfire in their homes or neighbourhoods. Recent reviews further published evidence regarding a moderate relationship between community violence and developing PTSD. This leads us to the term ‘collective traumatisation,’ which is more prevalent in low SES communities (Suliman et al., 2005). Unfortunately, numerous studies on PTSD symptomology in these age groups frequently report that these symptoms are misdiagnosed and untreated, especially in minority populations.

**A South African context.** Even though community violence and crime are high within South Africa, there seems to be a lack of awareness that children and adolescents may be adversely affected. However, according to the child and adolescent psychiatry unit at Tygerberg Hospital, PTSD is one of the most common disorders seen (Suliman et al., 2005). In agreement, Swain et al. (2017) detected similar results in South Africa compared to research in countries exposed to long-term violence. Swain et al. (2021) also noted that almost every third adolescent in an LMIC has symptoms of either PTSD or PTSS. Therefore, PTSD and its consequences are a major public health concern in South Africa, especially for young people who are thought to be traumatised to high levels by abuse, discrimination, and interpersonal violence – all of which are encouraged by the country's low socioeconomic status and disparity.

***Trauma Outcome of post-traumatic stress disorder (PTSD)***

According to the American Psychiatric Association (APA) (2013), post-traumatic stress disorder (PTSD), also known as shell shock/combat fatigue, can be defined as a psychiatric disorder that is a prevalent result of experiencing or witnessing traumatic events such as natural disasters, serious accidents, terrorist acts, war, rape, or who have been threatened by the abovementioned. In 2013, APA revised the PTSD diagnostic criteria and added an additional preschool subtype for ages six and younger in the fifth edition of its Diagnostic and Statistical Manual of Mental Disorders American Psychiatric Association (2013) To meet the criteria listed in DSM-5, the following symptoms must be experienced: stressor, intrusion symptoms, avoidance, negative cognitive and mood alterations, and changes in arousal and reactivity lasting longer than a month. These symptoms must also create significant distress and lead to functional impairment.

**PTSD prevalence rates.** According to APA (2013), PTSD affects approximately 3.5 percent of U.S. adults annually, with 1-in-11 meeting the full criteria for PTSD. They further found

PTSD to be unassociated with nationality, culture, and age but directly related to socioeconomic disadvantage. This could be because individuals with low SES are at a higher risk of developing PTSD as they are more likely to experience stressful life situations and traumatic events such as interpersonal violence, childhood maltreatment, and sexual assault compared to those of high SES (Bradley-Davino & Ruglass, 2020). This is supported by a study conducted on lower Manhattan residents, which demonstrated that education and low income were predictors of a higher probability of developing PTSD (Bradley-Davino & Ruglass, 2020). In addition, a recent review confirmed higher rates of PTSD among children and adolescents in low-and middle-income countries (Stupor et al., 2021). In contrast to APA's findings, the current literature on predictors in PTSD among children and adolescents suggests multiple linked social and biological factors, with the biggest influencer being economic stance. Furthermore, a meta-analysis found many other factors related to post-trauma outcomes, with the most prevalent being low social support, female gender, comorbid mental health problems, young age, and socioeconomic disadvantage (Stupor et al., 2021).

*A South African context.* This is particularly evident in South Africa, where most, if not all, these factors are currently playing an active role. South Africa is a developing country with a diverse history of constitutional racial segregation and exploitation during the apartheid era. Due to a liberation struggle characterised by political violence and state oppression, non-racial democracy was achieved in 1994 (Atwoli et al., 2013). High levels of crime, interpersonal violence, criminal activity, and socioeconomic disparities continue today, resulting in increased and long-term trauma exposure (Suliman et al., 2005). The literature illustrates that South African samples are under-represented in research of this nature, given the high rates of poverty and violence experienced by South Africans. According to Swain et al. (2017), South African mortality

rates are seven times that of the global rate, with interpersonal violence being one of the main contributors.

Further, PTSD is seen as a major public health concern, particularly for youth who experience high levels of trauma from discrimination, abuse, interpersonal violence, victimisation, and traumatic exposure (Atwoli et al., 2013). Thus, such studies are needed in this context as they may provide a further understanding of SES inequalities and insight into the development of PTSD. Due to South Africa's diverse history of apartheid and its consequences, with repeated traumatic changes and events, it may even provide further insight into the development of Complex-PTSD, and a strong argument for its separate inclusion in the DSM.

**Challenges in low SES settings.** The traumatic nature of this environment poses unique challenges for the younger population, who are exposed to higher exposure rates and repeated long-term exposure. They are more vulnerable to the impact of these stressors due to their ongoing neurobiological, emotional, and social development (Lewis, 2019). According to Lewis et al. (2019), 15-82 percent of adolescents experience a traumatic event, of which 1.4-8.1 percent meet the criteria for PTSD. Another study conducted in the U.S. found that adolescents with a low SES have a decreased probability of recovery from PTSD after traumatic exposure. This is due to the significant differences in quality of life between high-income and low- to middle-income countries (Hofman et al., 2005). More specifically, the heightened probability of inadequate healthcare systems, the lack of access to resources necessary to support resilience and recovery, and the lack of trained healthcare workers to provide these services (APA, 2013). This is particularly evident in South Africa, where poverty rates are high and access to resources is scarce.

Another issue present in the South African context is low mental health literacy. This can be described as “knowledge and beliefs about the illness that aid their recognition, management or

prevention” ( Ganshan et al., 2008). This is supported by a study conducted within South Africa, that found the most common reason for not accessing mental health services was the low perceived need for treatment (93%) (Sorshdal et al., 2009). Of course, culture also plays a major role, as some cultures believe ‘mental disorders’ are due to the spiritual realm and cannot be treated in Western ways. Although valid and perhaps true for some cases, others need access to mental health services for treatment. These challenges increase the risk of developing psychological problems and may exacerbate the symptoms, leading to more extensive psychological disorders, such as CPTSD (Hofman, 2005). It is therefore important to identify and understand factors within low SES communities, which might not only contribute to the development of PTSD but hinder recovery, specifically looking at the developmental impact of traumatic exposure on children and adolescents, as there is limited information and literature available for this age group, to inform future based interventions and treatments.

### **Problem Statement and Rationale for the Current Study**

PTSD has been defined as a public health concern in most countries worldwide, accordingly many studies have been conducted to identify interventions and the promotion of knowledge and understanding of the disorder in the hope of preventing and minimising the chances of such an outcome. Although some studies have found low SES to be a mediator of the trauma outcome of PTSD, some have found it to be a discrete variable, and others a predictor of the disorder. Though many have found a significant relationship between low SES and PTSD, it is imperative to understand that relationship and how it comes to exist. In addition, most of the studies conducted in this field involve adults, evidently showing a gap in the literature concerning children and adolescents. The purpose of this scoping review is to investigate and map studies that

demonstrate low SES as a predictive variable of the trauma outcome, PTSD in children and adolescents.

Given the recovery from the health pandemic (COVID-19) and the current war taking place in Ukraine, it is crucial to consider the impact and the changes that have and are expected to occur in economic functioning as a result of the adjustments made to cope with the crisis on a global scale (especially in developing countries). These adjustments include but are not limited to increased food prices, scarce resources, and inflation (Nicola et al., 2020). Therefore, it is critical to investigate how low SES environments may predict PTSD, especially amongst vulnerable populations such as children and adolescents.

## **Methodology**

### **Aim**

This study aims to map and synthesise studies that have demonstrated low socioeconomic status to be a predictor of the trauma outcome, post-traumatic stress disorder in children and adolescents.

### **Objectives**

- To explore studies that have demonstrated a relationship between low SES and PTSD among children and adolescents.
- To explore situational (e.g. early life exposure) and/or contextual (types of SES indicators) factors that contribute toward trauma outcomes (PTSD) in children and adolescents.
- To explore gaps in the literature to inform future research with regard to incremental validity of including measures of SES when determining a child or adolescent's complete victimisation profile.

### **Research Design and Phases**

The main aim of a scoping review is to examine and synthesise published and unpublished (grey literature) data within a particular field of research. It is to further map and establish the main concepts and ideas within that field and identify potential gaps or trends in the literature (Arksey & O'Malley, 2005). Scoping reviews prove useful when investigating topics that have not been extensively researched or seem broadly complex (Pham et al., 2014). These findings may be used as a step preceding a systematic review, providing insight for future research (Munn et al., 2018).

A broad search of numerous databases was accessed through the UKZN library, of which the two online platforms, Ebscohost and WILEY were utilised to identify and analyse literature relevant to this scoping review. This database search included Academic search complete, APA

Psych info, Psycarticles, Medline, and ERIC. The framework and five-stage approach of Arksey and O'Malley (2005) were used to guide this study. The five-stage approach is outlined as follows:

***Step 1: Identifying the research question***

A thorough and strong research question is needed for any scoping review. It guides the research strategy, the inclusion criteria, and the protocol, which enables the success of the literature search (Arksey & O'Malley, 2005).

The research questions for this scoping review include:

- Which studies have demonstrated a relationship between low SES and PTSD among children and adolescents?
- What are the situational and/or contextual factors that contribute to trauma outcomes (PTSD) in children and adolescents?
- What gaps are present in the literature that can be used to inform future research with regard to the incremental validity of SES measures when determining a child/adolescent's complete victimisation profile?

The rationale for conducting this study is to examine, map and investigate low SES as a predictive variable of the trauma outcome, PTSD in children and adolescents. It aims to specifically look at how low SES predicts PTSD, the contributing low SES factors, study characteristics used to show an association between low SES and PTSD, and the existing gaps in the literature to inform future-based trauma interventions.

***Step 2: Identifying relevant studies***

This scoping review needs to be wide-ranging and include all studies that appropriately answer the research question. This will be done by following Arksey and O'Malley's (2005) as

well as Levac et al (2010) strategy of searching electronic databases to identify relevant studies and reference lists, key journals, and existing networks to obtain relevant research evidence.

Electronic databases and reference lists were searched to obtain relevant evidence for this study. Further, inclusion and exclusion criteria as well as a catalogue of primary and secondary search terms were used to assist with the focus of relevant literature.

The *inclusion* criteria for this scoping review are:

- Quantitative, qualitative, mixed-methods study designs, case studies
- Study samples of children (infant to 12) and adolescents/teenagers/university students (age range 13 – 20 years of age), and clinical samples
- Studies looking at the development of PTSD in low SES among children and adolescents.
- Studies looking at low SES and the trauma outcome, PTSD among children and adolescents.
- Low SES as a predictive variable in trauma outcomes in children and adolescents

The *exclusion* criteria are:

- Systematic and scoping reviews
- Study samples of adults (21 years +)
- Studies looking at the effect of the Covid-19 pandemic on low SES and the trauma outcome, PTSD.
- Studies looking at other trauma outcomes; not PTSD
- Articles not in English

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

(Children OR adolescents) AND (post-traumatic stress disorder OR complex post-traumatic stress disorder OR structural trauma) AND (Low socioeconomic status OR poverty)

**Table 1.**

*Key search words using PCC elements*

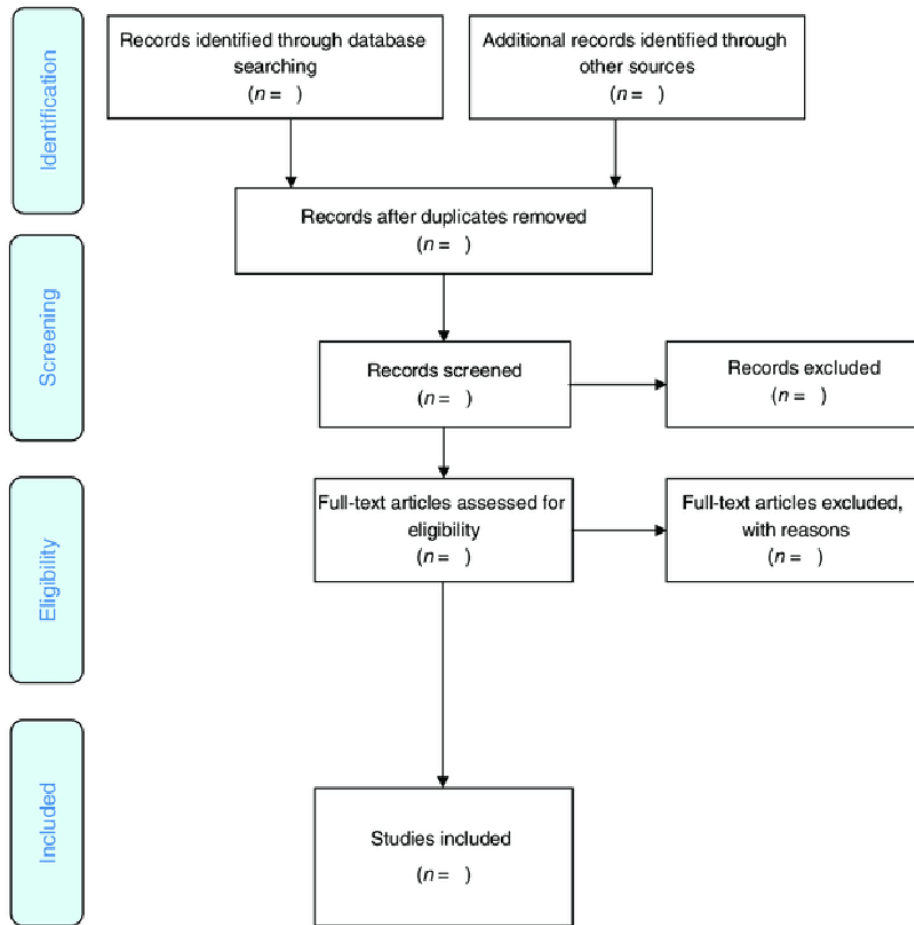
Population	Concept	Context
Children	PTSD	Low socioeconomic status
Adolescents	CPTSD	Poverty
	Structural trauma	

***Step 3: Study selection***

Following a keyword search, reviewing the literature involved screening the abstracts and full texts of the available articles. This was guided by the inclusion and exclusion criteria outlined above. An endnote library was created to assist with removing duplicates and screening relevant literature. Screening results were reported using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses-ScR (PRISMA-ScR) flow diagram, as shown in Figure 1 below.

**Figure 1.**

*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***

This stage involves charting and summarising the key information obtained from the reviewed articles (Khalil et al., 2016). Charting is defined as the process of synthesising and interpreting data by organising the information into key themes (Leval et al., 2010). A narrative

approach will be used in order to organise the relevant data into the following descriptive markers: author(s), the year of publication, the study aims and purpose, the methodology used, and the key findings of results (Pawson, 2002).

**Table 2. (Pham et al., 2014)**

*Charting of data using a narrative review approach (Pawson, 2022)*

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**Author(s),**

**Year of publication**

**Study Title**

**Aims and Objectives**

**Psychometric measures used**

**Study population**

**Methodology**

**Results**

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***Step 5: Collating, summarising, and reporting the results***

This is the final stage of the five-stage approach and includes presenting a summary of the studies reviewed. A thematic analysis tool was used to identify, analyse and synthesise information according to the main themes that have emerged from the reviewed literature. This allowed the

researcher to interpret and understand the data, compare concepts, and be thorough in answering the research questions (Arksey & O'Malley, 2005).

Arksey and O'Malley (2005) pointed out that an analytical framework should be used when reporting the results to conduct a successful thematic analysis. This is to ensure that the data is presented clearly and concisely. Similarly, Braun and Clarke (2006) argue that thematic analysis is a useful qualitative tool as it provides a rich and detailed account of the data. This tool was chosen for this study because it ensures reporting its findings clearly and concisely, illustrating how the data answers the research question and the study's overall purpose. The thematic analysis included the following six stages outlined by Braun and Clarke (2006).

**Step 1: Become familiar with the data.** This step involves reading and often re-reading the transcripts to get an overall understating of the data. It is important to become familiar with the data corpus as one may generate an outline, early impression, and general understanding of the extracted data (Braun & Clarke, 2006).

**Step 2: Generate initial codes.** This includes organising the data in a meaningful and systematic manner. Coding will be used to reduce the extracted data into smaller groups. The research questions were used to guide the coding of the extracted data, therefore theoretical thematic analysis was used rather than an inductive type. Codes were developed and modified during the coding process, no preset codes were used (Braun & Clarke, 2006).

**Step 3: Search for themes.** During this stage, appropriate codes that are associated with one another in some way will be placed under a theme. Thus, codes will be organised into broader themes to answer the research question. At the end of this step, the codes had been organised into broader themes that appeared to disclose something specific about the research question (Braun & Clarke, 2006).

**Step 4: Review themes.** During this phase, the preliminary themes that were identified in step 3 were reviewed and modified. The researcher reviewed extracted data to ensure that all associated data linked to a theme supports it. These themes need to be coherent and distinct from one another (Braun & Clarke, 2006).

**Step 5: Define themes.** As the last step of thematic analysis, the themes are refined, and the essence of each theme is identified (Braun & Clarke, 2006). The relationship of each sub-theme to the main theme is described to ensure coherence (Braun & Clarke, 2006).

**Step 6: Write-up.** This stage includes transforming the analysis into a report while using appropriate and compelling extracts from the data to provide empirical evidence and support the identified themes. A discussion will take place to describe and analyse the chosen themes, and finally, the themes will be used to answer the identified research questions (Braun & Clarke, 2006). Arksey and O'Malley (2005) describe the importance of including a descriptive numerical summary, which describes the characteristics of the final reviewed studies. This includes information such as the total number of studies, year of publication, design of the study, interventions applied, populations used, and locations where the study took place.

For the purposes of this study, only the following information will be included and shown in Table (5): Author(s), year; study title; aims and objectives; psychological measures used, study populations; location, methodology; SES indicators used, and results. Thereafter, thematic content analysis will be utilised to describe the themes found in the final studies that have been selected for review.

In order to accurately carry out step five of this approach, the following three steps will be followed as outlined by Levac et al. (2005); an analysis (including descriptive numerical summary analysis and qualitative thematic analysis), reporting the results, and producing the outcome that

refers to the research question, and to consider the meaning of the findings as they relate to the overall study purpose; implications for future research, practice, and policy (p. 4).

### **Search Strategy**

For the purpose of this study, a broad search of databases was accessed through UKZN's library as the relevant studies were distributed in various journals related to psychology, psychiatry, social work, and the medical field. Therefore, the platforms Wiley and Ebscohost were searched to access Academic Search Search Complete, APA PsycINFO, APA PsycArticles, MEDLINE, and ERIC.

The searches followed the inclusion and exclusion criteria, whereby only English or English-translated studies that were published in the last ten years (2012-2022) were reviewed. The database search was completed in July 2022 using the following updated search term combination:

(Children OR adolescents OR youth OR teenagers) AND (post-traumatic stress disorder OR complex post-traumatic stress disorder OR structural trauma) AND (Low socioeconomic status OR poverty)

**Table 3.***Search strategies and yields for electronic databases*

Database	Search strategy	Yield	Total relevant to study
Academic search complete (EBSCOhost)	(Children OR adolescents OR youth OR teenagers) AND (post-traumatic stress disorder OR complex post-traumatic stress disorder OR structural trauma) AND (Low socioeconomic status OR poverty)	163	65
APA PsycInfo (EBSCOhost)	(Children OR adolescents OR youth OR teenagers) AND (post-traumatic stress disorder OR complex post-traumatic stress disorder OR structural trauma) AND (Low socioeconomic status OR poverty)	311	63
Open access (Ebscohost)	(Children OR adolescents OR youth OR teenagers) AND (post-traumatic stress disorder OR complex post-traumatic stress disorder OR structural trauma) AND (Low socioeconomic status OR poverty)	8	8
Medline (EBSCOhost)	(Children OR adolescents OR youth OR teenagers) AND (post-traumatic stress disorder OR complex post-traumatic stress disorder OR structural trauma) AND (Low socioeconomic status OR poverty)	305	75
Eric (EBSCOhost)	(Children OR adolescents OR youth OR teenagers) AND (post-traumatic stress disorder OR complex post-traumatic stress disorder OR structural trauma) AND (Low socioeconomic status OR poverty)	26	5
Pubmed	(Children OR adolescents OR youth OR teenagers) AND (post-traumatic stress disorder OR complex post-traumatic stress disorder OR structural trauma) AND (Low socioeconomic status OR poverty)	332	198
Wiley	(Children OR adolescents OR youth OR teenagers) AND (post-traumatic stress disorder OR complex post-traumatic stress disorder OR structural trauma) AND (Low socioeconomic status OR poverty)	3,690	235
Total amount		4835	649

## Criteria for Inclusion

Table 4 below illustrates the inclusion and exclusion criteria that were used for this study in terms of study design, age of population, concept, context, language, and time.

**Table 4.**

*Inclusion and exclusion criteria*

Elements	Inclusion	Exclusion
Study design	Quantitative, qualitative, mixed methods study designs, case studies	Systematic and scoping reviews
Study sample	Study samples of children (infant to 12) and adolescents/teenagers/university students (age range 13 – 20 years of age), and clinical samples	Study samples of adults (21 years +)
Concept	Studies looking at the development of PTSD in low SES among children and adolescents.	Studies looking at the effect of the Covid-19 pandemic on low SES and the trauma outcome, PTSD.
	Studies looking at low SES and the trauma outcome, PTSD among children and adolescents.	Studies looking at other trauma outcomes; not PTSD
	Low SES as a predictive variable in trauma outcomes in children and adolescents	Low SES as a mediating variable in trauma outcomes in children and adolescents
Context	Low socioeconomic status	Any other socioeconomic rank
Language	English articles and articles which have been translated into English	Articles written in languages other than English, and

		which have not been translated into English
Period	Full-text studies published within the last 12 years	Studies/Articles published before 2012

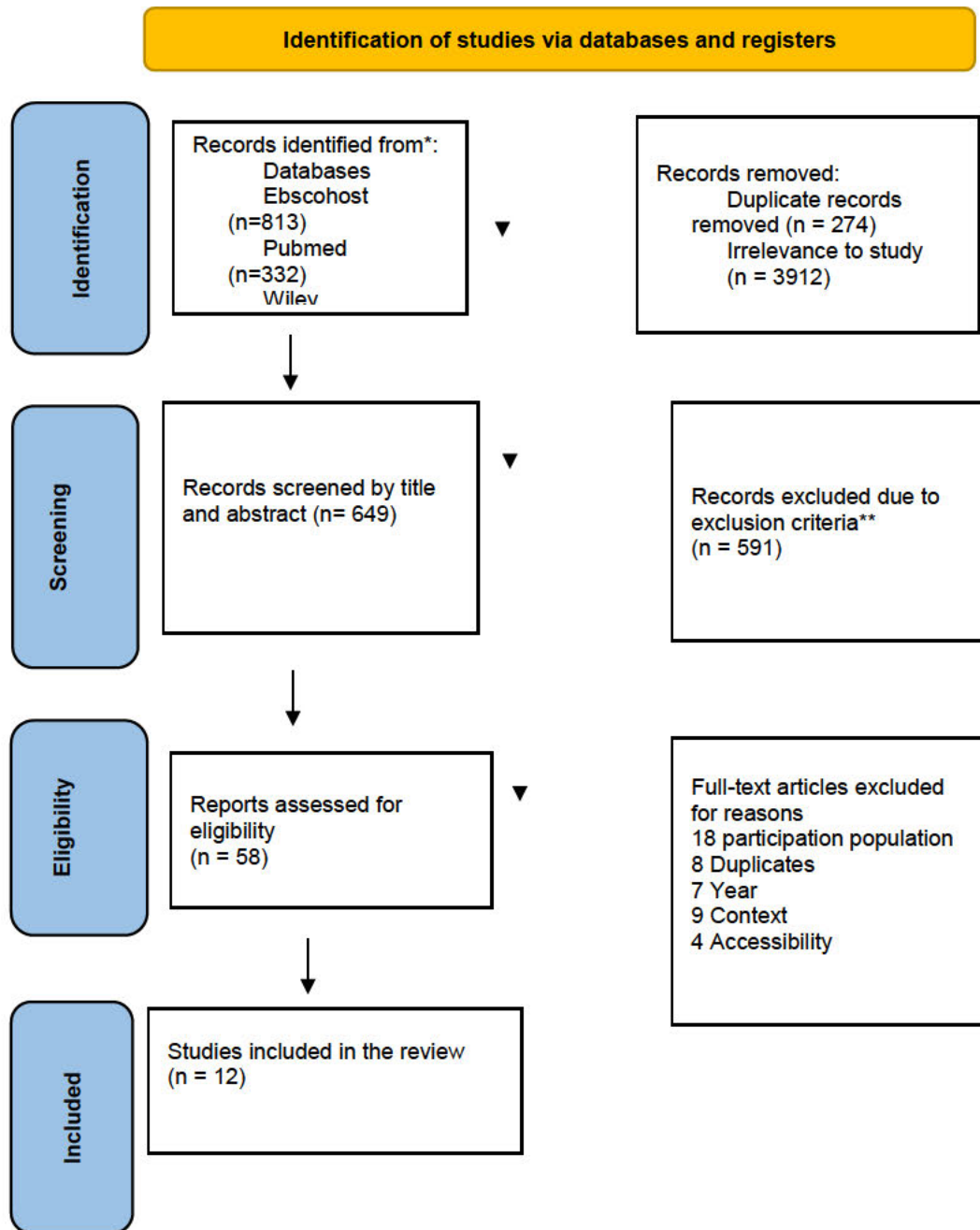
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### **Selection of Studies**

After obtaining studies using the search strategy, titles and abstracts were read and compared against the abovementioned inclusion and exclusion criteria. The studies that met the requirements were then reviewed by full text, and studies selected for final review were assessed to be eligible for inclusion in the study. However, to ensure the quality of studies and validity of this scoping review, a second reviewer was contracted to review selection process. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses-ScR (PRISMA-ScR) flow diagram shown in Figure 2 illustrates the reviewing phases utilised to identify articles eligible for inclusion.

**Figure 2.**

*PRISMA flowchart of the study selection process.*



The PRISMA-ScR flow diagram (above) demonstrates that 4835 studies were initially identified through electronic database searches, 274 duplicates were removed, and a following 3912 due to irrelevance to the study. After the titles and abstracts were screened, another 591

articles were excluded. The full texts of 58 studies were assessed for eligibility, whereby 46 were further excluded. To ensure the validity and reliability of the study, a second reviewer was utilised to screen the above-mentioned articles. The reviewer agreed upon the selection of studies and as a result, 12 articles were included for the charting of the data process.

During the full-text screening, articles were excluded for the following reasons: incorrect participant population ( $n=18$ ), duplicates across different databases ( $n=8$ ), year of data collection and publication fell outside of inclusion criteria ( $n=7$ ), the studies focused on a different context to that of inclusion criteria ( $n=8$ ), and inability to access full texts of articles ( $n=4$ ).

### **Charting the Data**

After reviewing the literature procured for this study, charting of the data took place whereby important data were extracted and charted into key themes according to step four of Arksey and O'Malley's (2005) five-stage approach. The important data extracted from each article will be charted in Table 5 in the results section in Chapter 4.

Arksey and O'Malley (2005), as well as Levac et al (2010) describe the importance of including a descriptive numerical summary, therefore, descriptive statistics will be used to summarise the data, frequencies and percentages applied to describe the nominal data. To illustrate the data in a clear and concise manner, graphs will be utilised to showcase the following aspects: distribution of studies across time, location of the studies, type of SES factors (situation/contextual), gender of participants, the study design of reviewed studies, correlational study outcomes and the types of psychometric measures used to measure PTSD in children and adolescents.

Further, a thematic analysis will take place, where the researcher will critically discuss the themes identified in the literature concerning the participants, concept, and context of the research (Braun & Clarke, 2012).

### **Collating, summarizing and reporting the results**

A thematic analysis tool was used to identify, analyse and synthesise information according to the main themes that have emerged from the reviewed literature. This allowed the researcher to interpret and understand the data, compare concepts, and be thorough in answering the research questions (Braun & Clarke, 2012). The following steps were used to identify the initial codes as shown in table 6, and themes shown in tables 7-11 within the results and discussion section.

**Step 1: Become familiar with the data.** This step involved reading and re-reading the studies procured for review, to get a good overall understating of the data it presented. It was important to become familiar with the data corpus as it generated not only general understanding of results but a slight outline and an early impression of the extracted data and how it answered specific research questions, as well as support the theoretical framework of this study (Braun & Clarke, 2006).

**Step 2: Generate initial codes.** This included organising the data in a meaningful and systematic manner. Initial coding was used to reduce the extracted data into smaller groups. The research questions were used to guide the initial codes of the extracted data, therefore theoretical thematic analysis was used rather than an inductive type. Codes were developed and modified during the coding process over a long-time frame until satisfaction of the researcher (Braun & Clarke, 2006).

**Step 3: Search for themes.** During this stage, appropriate codes that were associated

with one another in some way, were grouped together and placed under an overarching theme. Thus, the research questions were used to guide initial coding process, whereby extracted data were broken into smaller groups of information. These codes were then placed under an overarching theme, based on their association. These themes had to aim to answer a research question or be tied to the overall purpose of the study (Braun & Clarke, 2006).

**Step 4: Review themes.** During this phase, the preliminary themes that were identified in the previous step were reviewed and modified multiple times, as needed to ensure that it speaks to the research objectives of this research study and contributes to the overall purpose of the study. These themes were reviewed until they were coherent and distinct from one another (Braun & Clarke, 2006).

**Step 5: Define themes.** As the last step of thematic analysis, the themes are refined, and the essence of each theme was identified and elaborated on, to increase the depth and meaning of the study (Braun & Clarke, 2006). Further, the relationship of each sub-theme to the main theme was described to ensure overall coherence (Braun & Clarke, 2006).

**Step 6: Write-up.** This stage included transforming the analysis into a report while using appropriate and compelling extracts from the data to provide empirical evidence and support the identified themes. A discussion in the results section, contributed to the description and analysis the chosen themes, further informing the reader how the themes answered certain questions (Braun & Clarke, 2006).

## **Trustworthiness**

To ensure that the findings from this research study are trustworthy and can be relied upon to inform future research, certain steps need to be taken regarding the literature procured for review.

Therefore, all literature reviewed in this scoping review were tested for:

- **Credibility;** Literature must have established that their results were valid and credible with updated resources.
- **Dependability;** Literature reviewed must have indicated that similar results would have been found should the study have been conducted elsewhere, with the same criteria of participants and context.
- **Transferability;** Literature must have indicated a degree to which the results could be transferred to other settings.

## **Ethical considerations**

It is evident that ethical issues are less intense in scoping reviews than that of traditional research methods. As no human participants were included in this study, as it is a review of secondary literature, certain ethical principles do not need to be applied. Such as the principle of autonomy, justice and beneficence. Due to the secondary literature already being published in a public domain, there is no requirement of the researcher to store confidential information. This also ensures that no participants could be exposed to harm, upsetting questions of deceitfulness. Further no questioners or surveys were used to collect any data, and no psychometric assessments were used throughout the research process. Due to the nature of this study as a scoping review, no

permission was required from a gatekeeper to conduct the review. This review has also been exempted from an ethics review due to its data collection methods.

### **Limitations**

Scoping reviews often lead to a broader but less defined search. It requires multiple structured searches, which could take longer than one search. It further requires a second reviewer to overcome bias issues and increase the study's reliability and validity. In addition, there has been an inconsistency in the conduct of scoping reviews, which may lead to a slight deviation in format. In application to this study, a few structured searches have been conducted to ensure consistent findings of applicable studies. However, there is a possibility that the original reviewer may have missed some relevant studies. Another limitation of the study could be the selection of the databases as other databases might have identified additional relevant studies. The exclusion of studies published in other languages also limited finding evidence for the topic. Lastly, the lack of quality appraisal of included studies could hinder identifying gaps in the literature.

## Results and Discussion

### Introduction

According to the literature, children in adverse conditions risk developing mental health-related problems (Ainamani et al., 2022). These adverse conditions, such as poor youth and unsupervised urban environments, are common in developing low- and middle-income countries. Exposure to potentially traumatic experiences is rife amongst this population, especially children who are disproportionately exposed to interpersonal trauma, maltreatment, and partner and community violence (Enlow et al., 2013). Low SES is further related to repeated exposure to these events and a higher risk of developing psychiatric disorders (Bradley-Davino & Ruglass, 2020). Although a fair amount of research has been undertaken on the development of PTSD among adults, less research has been undertaken to understand the relationship between low SES and traumatic exposure. This includes its consequences, the risk factors, and development of PTSD among the vulnerable population of children and adolescents (Pluck et al., 2015).

Therefore, this paper aimed to map and synthesise studies that have demonstrated low socioeconomic status to be a predictor of the trauma outcome, post-traumatic stress disorder, in children and adolescents. The objectives of this study included exploring studies that have demonstrated a relationship between low SES and PTSD among children and adolescents, exploring situational (e.g. early life exposure) and/or contextual (types of SES indicators) factors that contribute toward trauma outcomes (PTSD) in children and adolescents, exploring study characteristics (i.e. scientific rigour) that determined a significant association between low SES and trauma outcomes (PTSD) in children and adolescents, and lastly, to explore gaps in the literature to inform future research concerning the incremental validity of including measures of SES when determining a child or adolescent's complete victimisation profile.

The following chapter will consist of a results and discussion section. The first section (results) will make use of narrative and descriptive statistics to demonstrate the data captured in the study (see section 4.2, tables 5 and 6, and figures 3-12). This data will then serve as the foundation for the second section (discussion), in which identified themes across the studies will be discussed (see section 4.3).

A subsequent section will be added to present data addressing the research objectives, as outlined in chapter three (methodology). This will be done utilising a thematic construction, whereby themes will be identified and critically discussed. The thematic content analysis will add to the overall quality of the discussion, demonstrating a clear illustration of how the findings relate to the research question and the study's overall purpose (Braun & Clarke, 2006).

## Results

**Table 5.**

*Charting of the extracted data*

<b>Author(s); year</b>	<b>Study Title</b>	<b>Aims and objectives</b>	<b>Methodology</b>	<b>Measures used</b>	<b>Key findings</b>
1. Ainamani, Weierstall-Pust, Bahati, Otwine, Tumswesigire & Rukundo, 2021.	Post-traumatic stress disorder, depression, and the associated factors among children and adolescents with a history of maltreatment in Uganda	To estimate the magnitude of PTSD and its associated factors amongst children and adolescents in Southwestern Uganda.	A cross-sectional study assessed 232 children and adolescents on the prevalence of PTSD using the child symptom PTSD scale (self-report) for DSM-5. Predictor variables were then taken from the maltreatment and abuse chronology of exposure pediatric version.	PEDI-MACE; maltreatment and abuse chronology of exposure pediatric version. CPSS-VSR; Child PTSD Symptoms scale	Children living under adverse conditions are at a higher risk of developing PTSD.
2. Ben-Parat, Yablon & Itzhaky, 2013	Is the development of PTSD blind to differences in social resources? Evidence from high school students facing terrorism.	An ecological study focuses on exploring the contribution of adolescents' environmental resources to PTSD, focusing on place of residence, personal resources, and loss of resources.	An ecological approach that focused on 1004 students, examining the contribution of environmental resources to PTSD.	Child Post-traumatic stress reaction index. Sociodemographic questionnaire. Exposure to Terror questionnaire. Perceived danger questionnaire	Levels of PTSD were higher amongst those living in low SES than in high SES. Gender, age, and place were significant
3. Cuartas & Roy, 2019	The latent threat of community violence: indirect exposure to local homicides and adolescents' mental health in Colombia.	To examine the relationship between adolescents' indirect exposure to local homicides, mental health disorders, and PTSD.	A sample of 300 adolescents from Colombia was obtained. Data came from three resources such as the mental health survey of Colombia, the statistical operational information system, and geocoded violent crimes recorded by the national police, was used.	SRQ; Self-reporting questionnaire of mental disorders. PCL; Post-traumatic stress disorder checklist.	The observed effect is larger for adolescents directly victimized and for those living in poverty. No detectable effects were found for those who perceived their neighborhoods as relatively safe.

4. Carbone, Holzer & Vaughn, 2019	Post-traumatic stress disorder among low-income adolescents experiencing family - neighborhood income disparities.	To explore the association between neighborhood income and family income as they relate to PTSD among adolescents.	Using a nationally representative sample of hospital emergency admissions in the US, the study hypothesized an interaction between family-level income and neighborhood-level income and PTSD in adolescents.	ICD classification diagnosis for PTSD	Low SES individuals in higher-income areas are associated with higher odds of PTSD for female adolescents. Low income was associated with both male and female adolescents.
5. El-Khondary, Samara & Askew, 2020	Traumatic events and PTSD among Palestinian children and adolescents: the effect of demographic and socioeconomic factors.	To investigate the prevalence and nature of war traumatic events and PTSD, and how they predict PTSD when taking into account socioeconomic status and demographic factors.	Palestinian school children and adolescents aged 11-17 years were sampled. 1,029 students were chosen according to place of residence, type of school, random sampling, and gender. 30 counselors and teachers were trained by the researchers and performed the interviews in the Gaza Strip. Data were collected in October 2013 one year after the Israeli attacks.	w-TECH- war traumatic checklist.  PTSDSS; Post-traumatic stress disorder symptoms scale	Children who had experienced personal trauma, trauma to others, and damage to property, had higher chances to be diagnosed with PTSD. Significant predictors of PTSD were female, low income, village residence, low education, trauma to others, witnessing trauma, and trauma to properties. Socioeconomic status increased the likelihood of PTSD.

6. Enlow, Blood & Engeland, 2013	Sociodemographic risk, developmental competence, and PTSD symptoms in young children exposed to interpersonal trauma in early life.	To examine the associations among interpersonal trauma exposure, sociodemographic risk, developmental competence, and PTSD symptoms in 200 children.	Participants were from the Minnesota longitudinal study of risk and adaptation, a prospective examination of adaptation in low-income families. associations among interpersonal trauma exposure, sociodemographic risk, developmental competence, and PTSD symptoms in 200 children from birth to 1st grade via home and laboratory observations, record reviews, and maternal and teacher. interviews.	CBCL; Childhood PTSD symptoms; parent and teacher report of the child behavior checklist	The findings suggest that exposure to maltreatment and intimate partner violence has additive effects on PTSD risk in early life. The associations between sociodemographic adversity and poor mental health may be attributable to increased trauma in disadvantaged populations and early exposures have a negative cascade effect on developmental competence and child mental health.
7. Milan, Zona & Acker, 2012	Prospective risk factors for adolescent PTSD: Sources of differential exposure and differential vulnerability	To identify factors that contribute to differential exposure and different vulnerability in regards to violence experienced by urban adolescents.	A multi-component longitudinal study designed to understand how families, schools, and neighborhoods influence child development. the study followed over 6000 households, from 80 neighborhoods and the assessment took place over 2 years. Measures were administered during home interviews.	Recent exposure to violence interview, DISC_IV, Community risk and socioeconomic disadvantage, socioeconomic risk, Family environmental scale, Behavioral adjustment, WISC-IV, Interpersonal problems perceived peer support,	Interpersonal violence history and externalizing behaviors were the best predictors of future violence but did not increase the risk of PTSD. Race, ethnicity, thought disorders, and social problems were predictors of PTSD.

8. McLuaghlin, Koenen, Eric, Petukhova, Sampson, Alan, Ronald & Kessler, 2012	Trauma exposure and PTSD in a national sample of adolescents	To estimate the lifetime prevalence of PTEs and PTSD, PTE-specific risk of PTSD and associations of sociodemographic and temporally prior DSM-V disorders with PTE exposure, PTSD gave exposure and PTSD recovery amongst adolescents.	Mixed methods: This report uses data from the National comorbidity survey replication adolescent supplement, a population base sample of U.S adolescents to describe the epidemiology of PTE exposure and PTSD among youth, including prevalence and correlates. The predictors considered here include the type of PTE, sociodemographic, and prior mental disorders.	Composite international diagnostic interview, screening questions about PTE.	62% experience lifetime PTE. This is higher in females than males. This was higher amongst those only living with one parent. Predictors included female gender, prior PTE exposure, pre-existing fear, and distress disorders. Poverty predictor non-recovery.
9. Mwanja, 2017	Relationship between socio-economic class and the level of PTSD resulting from post-election violence among primary school pupils	To investigate the type of relationship between socio-economic class and level of PTSD resulting from post-election violence amongst school children in Kenya.	The target population included standard 7 pupils in six primary schools, three in Kibera and three in Kayole. Purposive and stratified sampling was used. The background information was obtained using a questionnaire with 50 closed questions. Data on PTSD was obtained through a structured questionnaire.	Personal experience during the post-election violence, psychological stability scale Post-traumatic experience psychological scale.	Results show no difference between pupils in different socioeconomic status in levels of PTSD.
10. Pluck, Bhandu-Cruz, Diaz & Borja-Alvarez, 2014	PTSD and intellectual function of socioeconomically deprived street children in Ecuador	To investigate how PTSD could be associated with impairment in cognitive development, especially in a vulnerable population such as children of low socioeconomic status.	Street children were recruited from a charitable social project in Quito, Ecuador. 300 children were included, between the ages of 10-17. Children were assessed on three domains, adverse life events, PTSD and substance use, and cognitive functioning.	UCLA PTSD index was used	60% of these street children met the diagnosis of PTSD. No demographic or substance abuse-related differences were observed between those with and without PTSD. However, a link to cognitive functioning was noted. Those with better cognitive performance

11. Stupar, Vostanis, Atilola, Morerira, Franic, Droric, Avicenna, Multazam, Nussbaum, Thabet, Ubalde, Petrov, Monteiro, Ribas, Joana & Knez, 2021	Post-traumatic stress disorder symptoms among trauma-exposed adolescents from low to middle-income countries.	To evaluate the types of traumatic events experienced and the presence and predictors of PTSD symptoms among adolescents from LMIC.	Data was collected from 3370 trauma-exposed adolescents in Brazil, Bulgaria Croatia, Indonesia, Nigeria Romania, Serbia, Philippines, and Portugal as a high-income reference point.	ULCA PTSD reaction index	had more chance of developing PTSD.
12. Swain, Pillay & Kilewer, 2017	Traumatic stress and psychological functioning in a South African adolescent community sample	To examine the prevalence of PTSD symptomology and related psychological functioning in a community sample of adolescents	Home interviews with adolescents were used to collect data using standardized elements	Trauma inventory trauma checklist for children, children's somatization inventory, child behavioral checklist	Nearly every third of adolescents living in LMICs might have some PTSD symptoms after a traumatic event. One in ten might meet the full DSM diagnosis. Younger adolescents exposed to trauma and war, forced to have sex, and those with avoidance symptoms are at a greater risk for developing full PTSD. There is a significantly large positive correlation between PTSD and anxiety and a medium correlation between PTSD and depression. Results in the LMIC are similar to other long-term violent countries A–10%.

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**Table 6.***Thematic analysis coding of reviewed articles*

<b>Study title</b>	<b>Author (s)/ year</b>	<b>Code</b>	<b>Explanation</b>
1. Post-traumatic stress disorder, depression, and the associated factors among children and adolescents with a history of maltreatment in Uganda	Ainamani, Weierstall-Pust, Bahati, Otwine, Tumswesigire & Rukundo, 2021.	CSS1	Cross-sectional study 1
2. Is the development of PTSD blind to differences in social resources? Evidence from high school students facing terrorism.	Ben-Parat, Yablon & Itzhaky, 2013	ES1	Ecological study 1
3. The latent threat of community violence: indirect exposure to local homicides and adolescents' mental health in Colombia.	Cuartas & Roy, 2019	Q1	Quantitative study 1
4. post-traumatic stress disorder among low-income adolescents experiencing family-neighborhood income disparities.	Carbone, Holzer & Vaughn, 2019	Q2	Quantitative study 2
5. Traumatic events and PTSD among Palestinian children and adolescents: the effect of demographics and socioeconomic factors.	El-Khondary, Samara & Askew, 2020	Q3	Quantitative study 3
6. Sociodemographic risk, developmental competence, and PTSD symptoms in young children exposed to interpersonal trauma in early life.	Enlow, Blood & Engeland, 2013	Q4	Quantitative study 4
7. Prospective risk factors for adolescent PTSD: Sources of differential exposure and differential vulnerability	Milan, Zona & Acker, 2012	Q5	Quantitative 5
8. Trauma exposure and PTSD in a national sample of adolescents	Mcluaghlin, Koenen, Eric, Petukhova, Sampson, Alan, Ronald & Kessler, 2014	Q6	Quantitative study 6

9. Relationship between socio-economic class and the level of PTSD resulting from post-election violence among primary school pupils.	Mwania, 2017	Q7	Quantitative study 7
10. PTSD and intellectual function of socioeconomically deprived street children in Ecuador.	Pluck, Bhandu-Cruz, Diaz & Borja-Alvarez, 2014	Q8	Quantitative study 8
11. Post-traumatic stress disorder symptoms among trauma-exposed adolescents from low to middle-income countries.	Stupar, Vostanis, Atilola, Morerira, Franic, Droric, Avicenna, Multazam, Nussbaum, Thabet, Ubalde, Petrov, Monteiro, Ribas, Joana & Knez, 2021	Q9	Quantitative study 9
12. Traumatic stress and psychological functioning in a South African adolescent community sample	Swain, Pillay & Kliewer, 2017	Q10	Quantitative study 10

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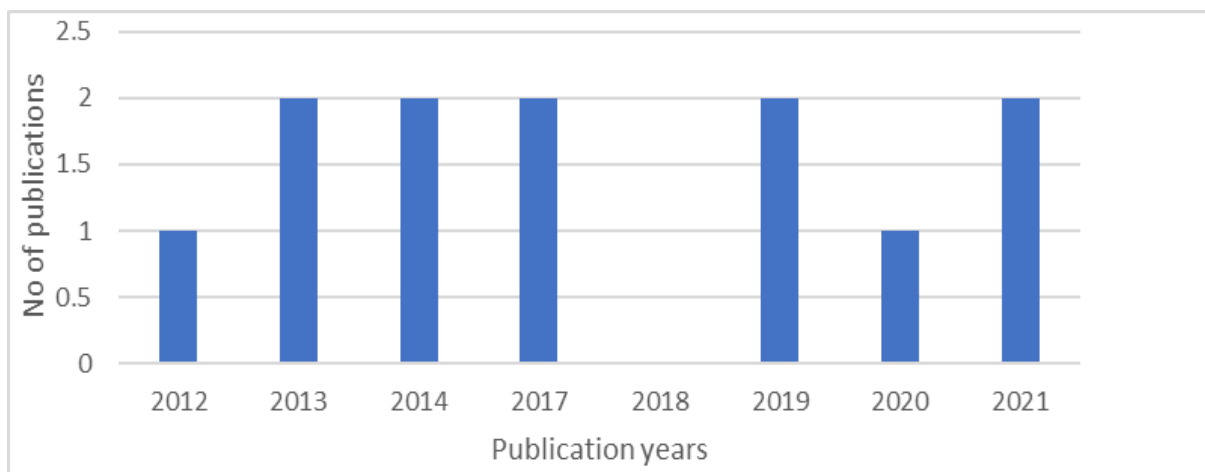
As mentioned, 12 studies met the inclusion criteria and were included in this scoping review. These studies used a quantitative methodological design, utilising self-reported questionnaires or structured interviews to administer the items. The sampled population consisted of children and adolescents. Although some studies included data sets from parents/teachers, this data was excluded from the present study. The predominant population age was between 8 and 18 years, with one study focusing on children under six.

### *Numbers of publications per year*

The number of publications from 2012 to 2022 is illustrated in Figure 3 below. There was an increased interest in the topic between 2013 to 2017. Although many articles were published during this year, none met this review's inclusion criteria. Only one article published in 2019 was included in this review. Although extensive research has been conducted on trauma and PTSD amongst the adult population, new ideas have been formed regarding the impact of trauma experienced during the developing years. Thus, there has been a shift in interest over the past decade, with the impact of trauma on the younger population becoming a focal point in research.

**Figure 3.**

*Number of publications per year*

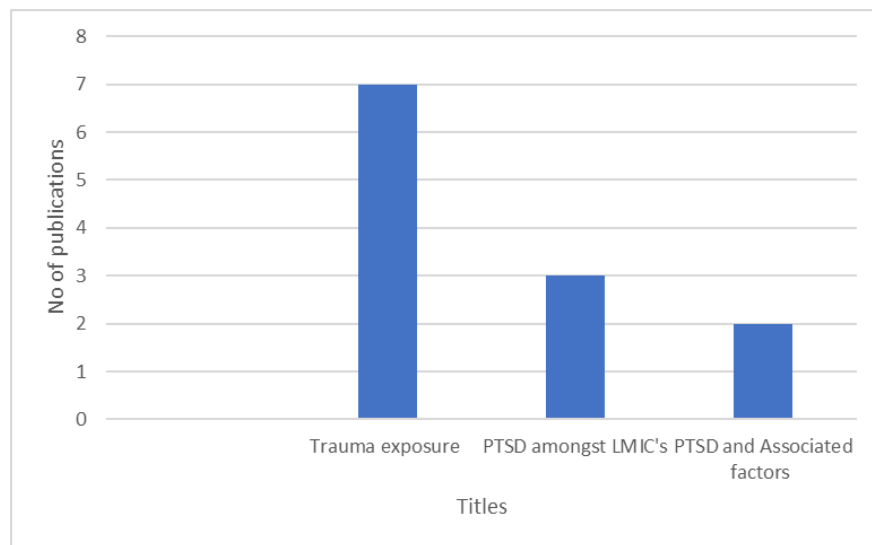


### ***Titles***

Most studies in this scoping review had similar study titles, aims, and objectives. Across all (n=12) studies, there were variations of comparable titles with apparent key terms and phrases. Some key phrases include ‘Traumatic exposure amongst children and adolescents’, ‘PTSD amongst children/adolescents in low/middle-income countries’, and ‘Associated risk and protective factors and PTSD’. The identified keywords, prevalent across the study titles, are illustrated in Figure 4 below.

**Figure 4.**

### *Titles*



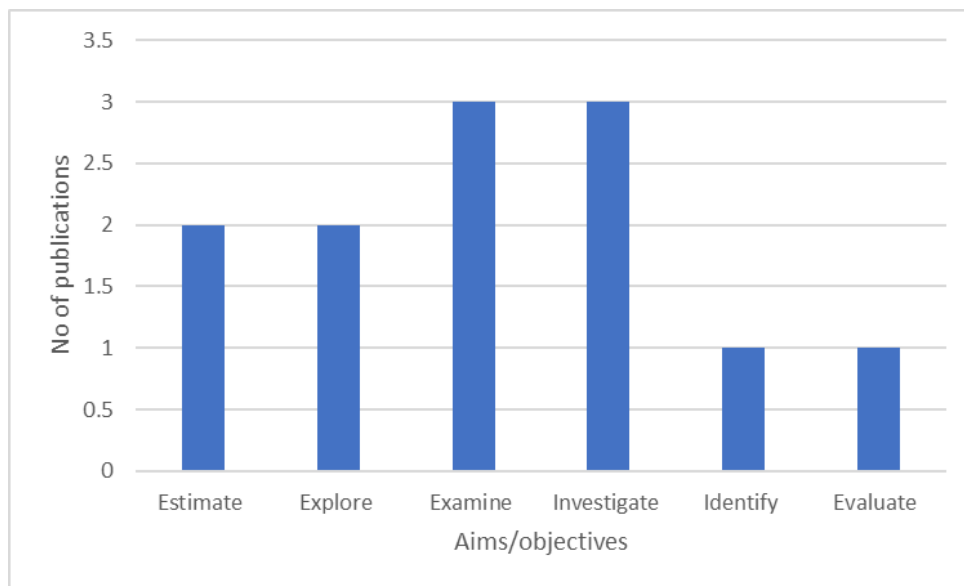
### ***Aims and Objectives***

Various similarities were found across the identified (n=12) studies regarding aims and objectives. All studies that met inclusion criteria included the following terms in their objectives: to estimate the prevalence of PTSD, to explore the influence of other factors on PTSD, to examine traumatic exposure amongst children and adolescents, to investigate the relationship between two

variables, and to identify predictor variables for the development of PTSD and to evaluate the types of traumatic events and associated factors (see Figure 5 below).

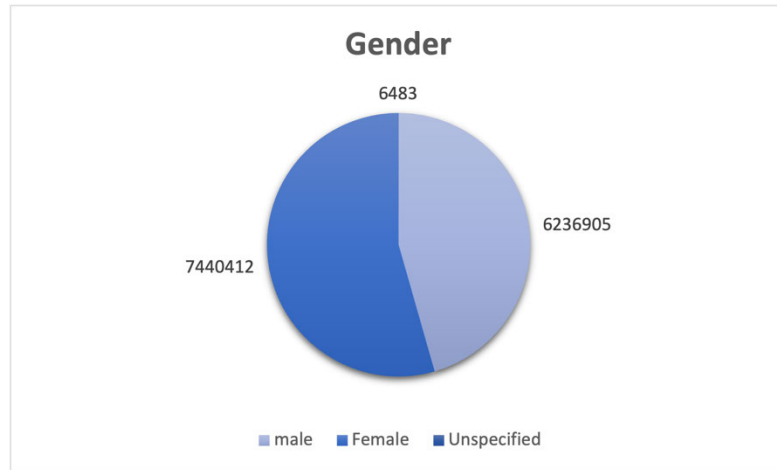
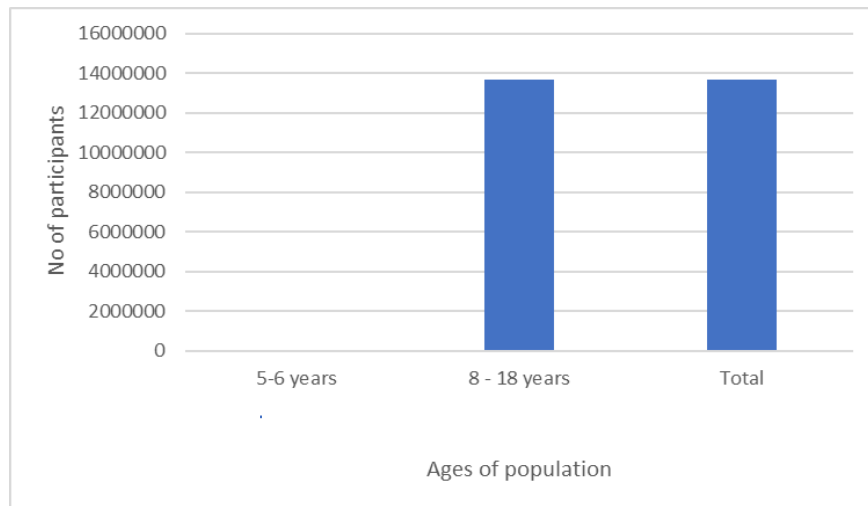
**Figure 5.**

*Aims and Objectives*



***Gender and age of participants***

Secondary data was retrieved from (n=12 studies), which cumulatively assessed 13 683 800 participants between the ages of 5-19. Of these participants 200 were under the age of 6 years. Eleven (11) of these studies specified the gender of the participants: 6236905 were male, and 7440412 were female. One study did not specify gender differences, leaving 6483 participants unspecified. This will be illustrated in Figures 6 and 7 below.

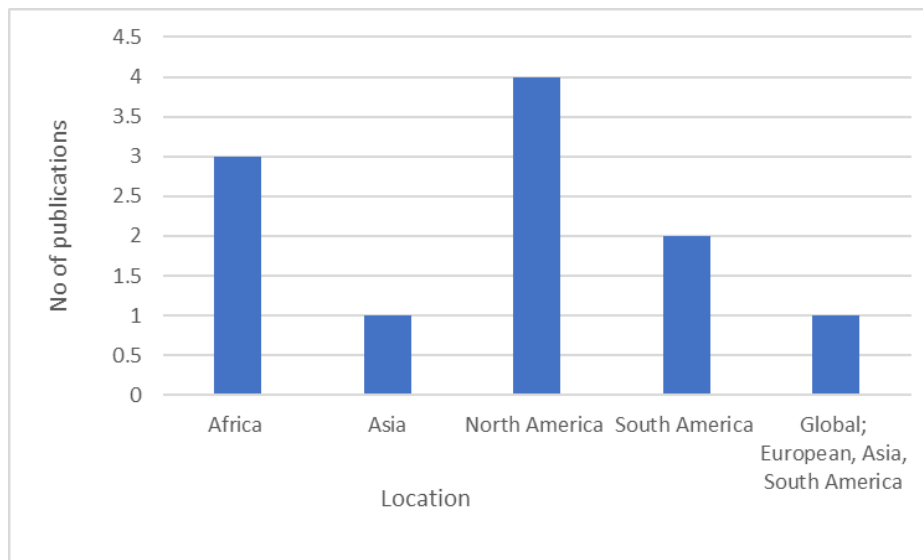
**Figure 6.***Gender of the population***Figure 7.***Ages of population****Location of reviewed studies***

Concerning the location of studies included in this review, it is clear that research on this topic is being conducted worldwide. Out of (n=12) studies, (n=4), most studies have been conducted in North America. Further, (n=3) studies have been conducted in Africa, (n=2) in South America, and (n=1) in Asia. In addition, one article included multiple samples across different

continents. These included one Asian country, a few European, and one in South America, illustrated in Figure 8 below.

**Figure 8.**

*Location of reviewed studies*



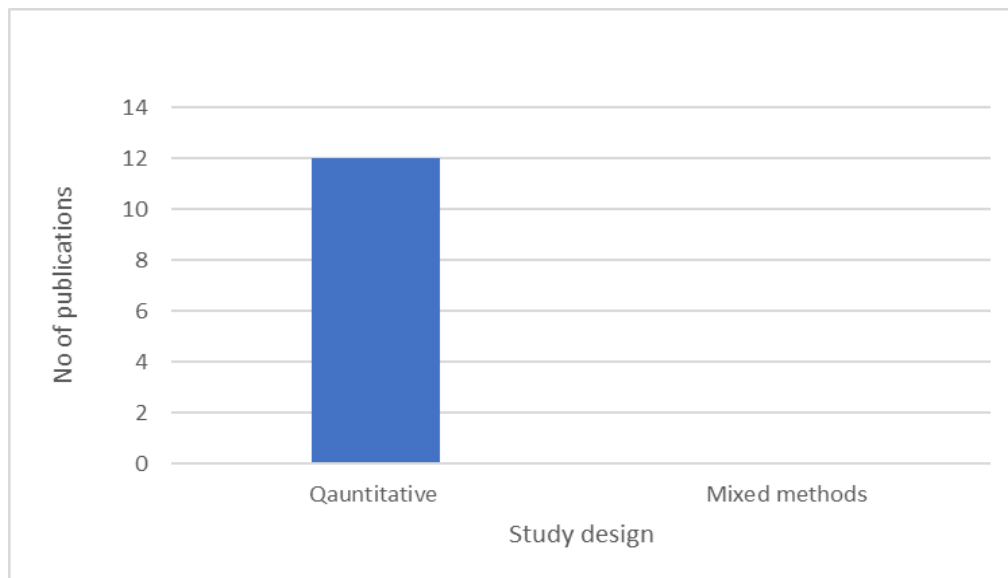
*Study design and psychometric measures*

Across all studies reviewed, varying degrees of prevalence rates, risk factors, and associations between low socioeconomic status and PTSD have been demonstrated. This association was examined using multiple psychometric measures to collect data using a quantitative study design (n=11) (e.g., PCL PTSD checklist), while others obtained outcomes through a mixed method approach (n=1). The quantitative studies mainly used scales/questionnaires that measured participants' PTSD symptoms for children and adolescents, such as behavioural checklists, socioeconomic status scales, and trauma exposure measures. In contrast, the mixed method study utilized psychometric measures with face-to-face interviews.

The psychometric scales utilised in the reviewed studies have been shown to provide good psychometric properties and test-retest reliability (see Figure 11). All the psychometric measures were proven to be both valid and reliable by the prospective researchers. The various scales measuring trauma and symptoms of PTSD demonstrated adequate construct validity and internal consistency. The study design of the reviewed studies and the psychometric measures used will be illustrated in the figures below (9, 10, and 11).

### Figure 9.

#### *Methodological study design*

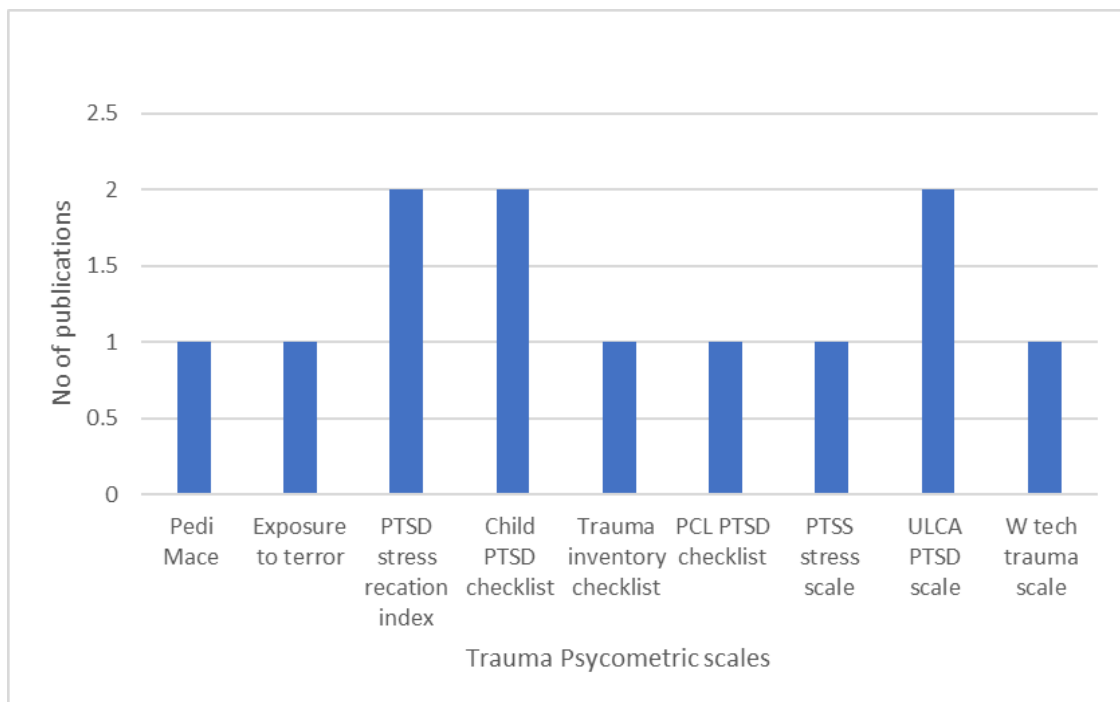


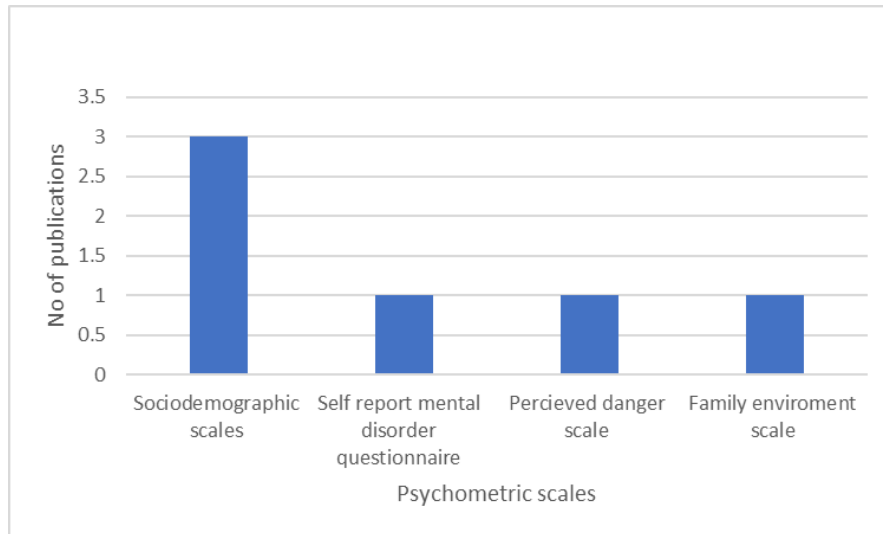
Multiple psychometric measures have been used across all the included studies to measure socioeconomic disadvantage, traumatic exposure, and PTSD (12). Various measures have been utilised to measure the severity of symptoms and level of PTSD (see Figure 10). However, it is essential to clarify that some studies (n=4) out of the (n=12) have used trauma scales with embedded SES (socioeconomic status) factors. These trauma scales include the paediatric version

of the Maltreatment and Abuse Chronology of Exposure Scale (Mace), the Self-reporting questionnaire (SRQ), the Trauma Symptom Checklist (TSC), and the University of California at Los Angeles Post-traumatic Stress Disorder Reaction Index for DSM-5 (UCLA). Others (n=8) used independent SES measures, which will be shown in Figure 11.

**Figure 10.**

*Trauma psychometric measures*



**Figure 11.***Sociodemographic measures****Study Outcomes***

In a cross-sectional study of children and adolescents, Ainamani et al. (2021) used a quantitative methodological study design and used maltreatment Questionnaires and PTSD checklists to obtain data. This study found a significant association between intimate partner violence, staying in more than two homes, and being cared for by non-relatives. Vulnerable children who rotate from one home to another are frequently subjected to maltreatment, particularly in LMICs.

Similarly, in an ecological approach study (Ben-Parat, 2013), found PTSD as higher among low SES populations than high SES populations. More specifically the interaction between the place of residence and perceived danger contributed significantly to PTSD in low SES communities. Accordingly, a quantitative study done by Cuartas et al. (2019) found a more significant effect of PTSD among those who were directly exposed to violence and those living in poor households and view their neighbourhood as unsafe. Interestingly, a quantitative study by

Carbone et al. (2019) found that PTSD was higher among low-income adolescents as the ZIP code median income increased compared to non-low-income adolescents. Indicating that those of low income but living in higher income areas are more likely to develop PTSD.

In a quantitative study by El-Khondary et al. (2020), female gender, low income, low education, village residence, exposure to trauma, trauma to others, and witnessing property damage were predictors of PTSD. Alternatively, Mwanja (2020) found no significant relationship between socioeconomic class and levels of PTSD, suggesting that all children are equally susceptible to PTSD after exposure to trauma. A quantitative study conducted in South Africa, where mental health services are limited and individuals are exposed to long-term violence, found prevalence rates similar to other LMICs exposed to long-term violence. In addition, a study conducted by Stupar et al. (2021) found rates of adolescents with a likely diagnosis of PTSD were lower in the LMIC Indonesia (6.2%) and highest in Nigeria (15.3%), while 10% were found in a HIC such as Portugal. Stupar (2021) concludes that adolescents in LMICs may not have higher levels than those in HICs but demonstrate a marked variety in severity and symptomology across LMICs. Further findings suggest that younger age and exposure to trauma, specifically war or sexual assault, increased the risk of PTSD/PTSS. Other studies suggest trauma exposure heightens the chances of developing PTSD during young adolescence when previous symptoms of PTSS have been experienced.

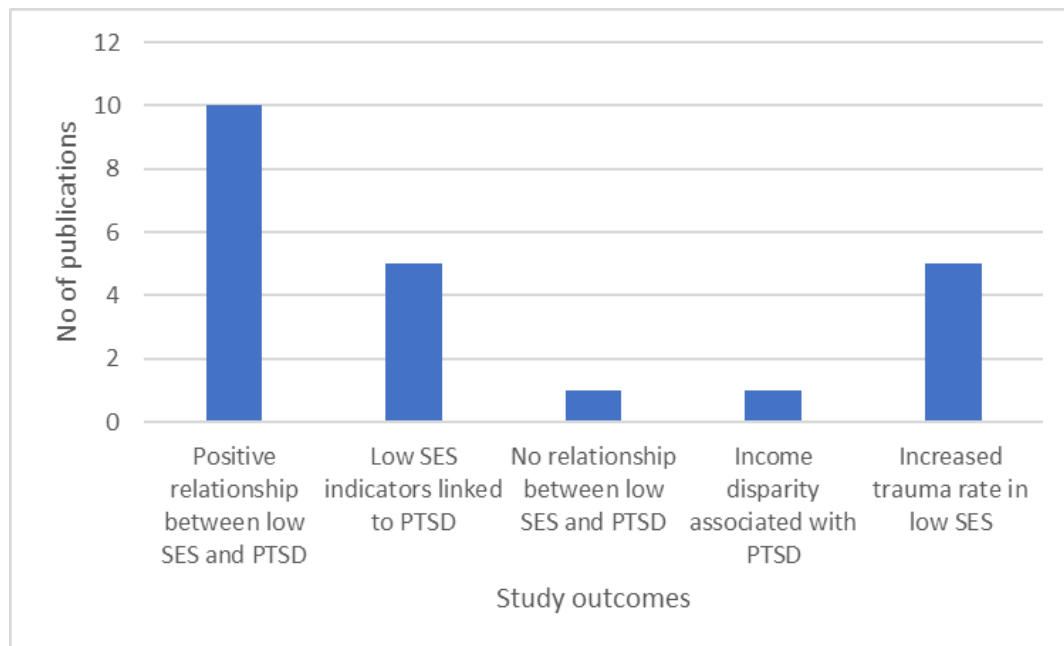
### ***Summary of Study Outcomes***

Out of all of the reviewed studies ( $n=10$ ) found an association between poverty/low SES and the outcome of PTSD amongst children and adolescents (Ainamani et al., 2022; Ben-Parat et al., 2013; Cuartas & Roy et al., 2019; El-Khondary et al., 2020; Enlow et al., 2013; Mclaughlin et al., 2012; Milan et al, 2012; Pluck et al, 2014; Stupar et al, 2021; Swain et al, 2017). Some studies

explicitly stated having found a predictive relationship between low SES indicators and PTSD prevalence rates (n=5) (Ainamani et al., 2022; Ben-Parat et al., 2013; Cuartas & Roy et al., 2019; Enlow et al., 2013, Pluck et al., 2014). In comparison, some found the increased trauma exposure in low SES communities to be a predictor of PTSD (n=5) (MacLaughlin et al., 2013, Milan et al., 2012; El-Khondary et al., 2020; Stupar et al., 2021; Swain et al., 2017). On the other hand, one study found no association between low SES and PTSD (n=1) (Mwaina, 2017). The last study found that income disparities between children/adolescents and the neighbourhood were the most significant contributor PTSD (n=1) (Carbone et al., 2019). Results are illustrated in Figure 12 below.

**Figure 12.**

*Study outcomes*



## **Discussion**

Based on the 12 articles included in this study and the respective descriptive statistics above, apparent similarities were noted, such as aims and objectives, study design, and population ages. PTSD and traumatic experience definitions were guided by the DSM and measured with various psychometric tests with high incremental validity and credibility. Some studies also examined associated variables such as war exposure and community violence. These variables were important to consider and reflect on, not only because they speak to the objectives of this present study but because they depict the reality of living in low SES environments (Pluck et al., 2014; Mwanja, 2017).

### ***Participants, context, and concept of reviewed studies***

As mentioned in the results section, nine of twelve studies were located globally, two were sited in Africa and one in South Africa. Although the studies were located in low socioeconomic environments, most were conducted in America, where numerous resources and funding are available for research. During the scoping phase of this present study, there were a limited number of publications available within this area of research in the South African context, especially with regard to the vulnerable population, children. This may be due to multiple reasons, such as the vulnerability of this age group, lack of access to the population because of cultural and language barriers, and lack of resources.

Further, all but one of the reviewed studies used a quantitative methodological design, and no qualitative measures have been used in this research area. This has resulted in a lack of research and understanding of the subjective meaning attached to the personal experiences of children and adolescents within these settings. Additionally, it has resulted in a lack of insight into the role low SES plays in the victims' cognitive appraisal of the self, others, and the world. As this concept is a criterion and distinct symptom of PTSD, it seems vital to understand the child's complete victimisation profile to obtain a clear picture. Qualitative research would thus be beneficial to this

field of research as it would expand on the personal and subjective meaning and perceptions of the victim, the role low SES plays in the cognitive appraisal of the child and the nature and direction of the relationship between low SES and the development of personal PTSD experiences. To overcome this gap, prospective researchers could use more mixed-method approaches, including open-ended questions and instructed or semi-structured interviews. This could further expand the relationship between the variables and generate a deeper understanding of the contextual and social factors that impact the identified relationship. Thus, a qualitative account of individual participants' experiences could supplement the numerical and statistical results, further enhancing the outcomes of the conducted studies (Doyle, Brady & Byrne, 2009).

Although global literature is vital and often plays a crucial role in innovative research, there is no guarantee that such studies can be generalised worldwide due to contextual disparities. Even though the publications included in this review were all from low SES settings, certain contextual factors impede making the results generalisable due to the influence of social, political, and economic disparities within this society. Some examples of these disparities include the fact that 23 out of the 27 lowest socioeconomic economies worldwide are located within the African continent. Additionally, it seems important to mention some statistics within a South African context to generate a further understanding of disparities (StatsSA, 2018). A segment, and nearly half of the population within a South African context, is considered chronically poor (2015 stats) (high poverty persistence). The second segment has an above-average chance of regressing into poverty (the transient poor), and the third segment, considered non-poor but still vulnerable, meets an above-average risk of regressing into poverty. These two groups (segments two and three) represent 27 percent of the population. These statistics, in combination, suggest that 76 percent of the South African population face the constant threat of poverty in their day-to-day life (StatsSA,

2018). This reality is different from other developing countries and should be considered when generalising findings to such a vulnerable community.

PTSD is a common outcome reiterated by the literature review and results above, especially in communities where traumatic experiences are rife, such as low socioeconomic environments. However, PTSD as a construct may be perceived differently in diverse low-SES communities due to cultural and religious differences. As Western conceptualisations of constructs and associated meanings differ greatly from African constructs, Africans and South Africans might experience PTSD and mental health-related outcomes differently from Westernised populations. This is also why psychometric measures created in a local environment cannot be utilised and generalised on a global scale; the accuracy and reliability of the test decreases due to normative differences. It thus seems imperative for the development, adaptation, norming, and standardisation of mental health psychometric tests for the South African context as findings would be more valid, reliable, and generalisable to the population.

In addition, more research should be conducted within an African and South African context, using a mixed-method approach to explore these understandings, constructs, and conceptualisations and generate reliable and generalisable results. It would greatly benefit its citizens to have access to information about mental health, the risk factors relating to living in low SES, the possible impact and consequences of traumatic experiences, how it can impact children and adolescents, and access to information and resources to overcome such experiences. In addition, because this present study focused on the vulnerable population of children and adolescents, parental figures and/or caretakers must be well-informed to protect this age group and prevent the development of such adverse outcomes.

***Thematic analysis***

For this study, a broad search of databases was accessed through UKZN's library. After following the inclusion and exclusion criteria, 12 studies were procured for review. The findings of the studies highlighted various variables, risk factors, protective factors, structural and contextual factors, and diverse perspectives and outcomes. Some findings corroborated with the findings of the studies presented in the literature review (Chapter 2), while others highlighted additional perspectives. While reviewing the selected 12 publications, several overarching themes were identified: 1) structural risk/protective factors, 2) stages of development, 3) gender differences, 4) study designs, and 5) study outcomes. These themes are illustrated in tables 7, 8, 9, 10, and 11, with discussion below each table.

**Table 7.***Theme one and sub-themes*

<b>Risk/protective factors in low SES</b>	<b>Source author(s)</b>
Parental instability	Ainamani et al., 2022; Carbone et al., 2019; El-Khondary et al., 2020; Enlow et al., 2013; Mchlaughlin et al., 2013.
Internal and external resources	Ben-Parat et al., 2013; Enlow et al., 2013; El-Khondary et al., 2020; Pluck et al., 2014; Mwanja, 2019; Swain et al., 2017.
Increased interpersonal violence	Ainamani et al., 2022; Ben-Parat et al., 2013; Cuartas & Roy., 2019; Enlow et al., 2013.

**Structural risk and protective factors.** The first theme identified in the present study was the structural risk/protective factors found amongst low SES localities across the studies included for review. These factors were further categorised into three separate components, all of which significantly influence the mental health of children and adolescents: parental deprivation, internal and external resources, and increased interpersonal violence.

**Parental instability.** One major sub-theme that stood out among a few articles included for review was parental instability. This comes through in many forms, as many children and adolescents living in low SES are cared for by non-relatives, one parent, or live in multiple parent-less homes. Ainamani (2022) titled this as a predictor variable because children who are cared for by non-relatives are often subjected to maltreatment and neglect, whether physically or subjectively. Further, it was highlighted that parental care ensures quality bonds and attachment, which may be a resilience factor

for traumatic exposure. This suggests that children cared for by non-relatives most often have poor bonds and attachments, making them more vulnerable to the consequences of traumatic incidents. It further disrupts the recovery process as children and adolescents do not receive proper guidance or care in their recovery process.

Further, inadequate supervision of children and adolescents in communities often increases high-risk behaviours such as substance use and delinquency. These high-risk behaviors often perpetuate or maintain the cycle of trauma exposure (Caurtas & Roy, 2019). While most studies identified that single parenthood increases children and adolescents' chance of experiencing symptoms of PTSD after a traumatic event, one study in particular found that absent fathers increase these chances (El-Khondary et al., 2020; McLaughlin, 2012).

In addition, it was found that parental education levels and employment status had a substantial impact on the parent's general physical and emotional availability. Most studies found that lower education levels of parents increased their chances of employment struggles and economic pressure, forcing them to commit to multiple jobs or jobs requiring travelling/migration. These factors increase the chances of children living with extended family members/a single parent or non-relatives (El-Khondary et al., 2020). Further, McLaughlin (2012) found that those who grow up without both parents may develop a predispositional vulnerability which could make them more susceptible to PTSD symptoms, expanding the view that poor bonds and attachments make children and adolescents more vulnerable to the consequences of traumatic incidents.

***Internal and external resources.*** The second sub-theme that stood out across the studies was the availability of external and internal resources within low SES localities. To explain the influence that resources have on the resilience of children and adolescents, Ben-Parat (2013) referred to the Conservation of Resources (COR) theory. This theory assumes that individuals with more available resources are less vulnerable to losses and would be better equipped to use those resources. Similarly, those with a scarcity of resources would be more vulnerable to losing further resources, making them

susceptible to adverse events, especially concerning external resources. This is further supported by El-Khondary et al. (2020), who found that families who earn less than an average income are more exposed to traumatic events. This also impacts access to health care post-traumatic events, decreasing the chances of children and adolescents successful recovery from traumatic exposure and symptoms of PTSD or PTSS (Enlow et al., 2013). Mwanja (2017) further highlights the need for immediate aftermath intervention for children and adolescents to decrease the intensity of consequential symptoms. A lack thereof results in a more complex development of such symptoms. In addition, it was highlighted that those who lack resources and are limited in their capacities (e.g., income constraints) to utilise the available resources within the environment in which they live (education, adequate treatment) are more susceptible to the impact of negative events within that environment, further supporting the COR theory (Ben -Parat, 2013; Cuartas & Roy, 2019).

However, it was also highlighted that in areas where external resources are limited, individuals, especially adolescents, are more likely to rely on internal resources, such as resilience and a sense of mastery. With regard to internal resources, a sense of mastery is considered a factor that could mitigate the symptoms of PTSD (Ben-Parat, 2013). This protective relationship was highlighted in many other studies relating to adolescents. It allows adolescents to cope better with the intense distress and feelings of helplessness, increasing their chances of recovery or prohibiting the full development of PTSD. Thus, should external resources be limited, the development of mastery and resilience could act as a protective factor. Should external resources be widely available, but there is a lack of an internal sense of mastery, resilience may be inadequate, and children/adolescents may still be vulnerable to PTSD.

***Increased interpersonal violence.*** The third sub-theme identified in the present study was the presence of increased interpersonal violence among low SES localities across the studies included for review. Children and adolescents living in adverse circumstances are more exposed to experiencing or witnessing interpersonal violence. This, in combination with a history of interpersonal violence, is understood to be one of the main contributors to the outcome of PTSD (Ainamani et al., 2022; Cuartas

& Roy, 2019; Enlow et al., 2013; Mchlaughlin et al., 2013; Milan et al., 2013; Pluck et al., 2015; Stupar et al., 2021).

Most of the studies included for review were consistent with that of previous studies, the greater the exposure to unfavourable circumstances and traumatic events, the greater the likelihood of developing PTSD. What stood out was the overall argument that those who witnessed (intimate) interpersonal violence were subjected to developing more PTSD symptoms compared to other types of trauma. Living in low socioeconomic localities often increases economic pressures and results in families residing in less safe environments with increased crime and violence rates. These neighbourhood characteristics lead to decreased collective efficacy, increasing the opportunity for high-risk behaviours, often subjecting individuals to higher chances of experiencing trauma. In addition, one study found a significant indirect effect between sociodemographic risk and PTSD symptoms through trauma. This suggests interpersonal violence to be a mediating variable.

A view supported by evidence found in the Milan et al. (2012) study highlighted the diathesis-stress model's theory and its usefulness in understanding children and adolescents' development of PTSD. It highlighted the need to conceptualize risk factors, environmental stressors, and symptomatic responses in a transactional framework. This means that a combination of vulnerability factors and environmental stressors interact to predict a specific outcome. The argument that low socioeconomic status, as a vulnerability factor, interacts with the (mediating) environmental stressors to predict the outcome of PTSD is thus supported. Resilience and mastery serve as factors to mitigate this development. This is also supported by Cuartas and Roy (2019) and Enlow et al. (2014), who speak of the cumulative risk hypothesis, which argues that children and adolescents exposed to multiple stressful contexts, such as poverty and adversity in the forms of a traumatic event, especially interpersonal violence, may result in increased reactivity and impaired recovery. Therefore, most of the studies included for review have identified parental instability, internal and external resources, and interpersonal violence as risk factors for PTSD among children and adolescents within low SES

communities. All these risk factors are highlighted and supported by Kira (2001), in the taxonomy of trauma and trauma assessment theory.

**Table 8.**

*Theme two and sub-themes*

Stages of development	Source Author(s)
Early life exposure	Ben-Parat et al., 2013; El-Khondary et al., 2020; Enlow et al., 2013; Mchlaughin et al., 2014; Milan et al., 2012; Pluck et al., 2014; Stupar, 2021; Swain et al., 2017.
Transition to adolescence	Ben-Parat et al., 2013; El-Khondary et al., 2020; Enlow et al., 2013; Milan et al., 2012; Mchlaughin, 2013; Stupar, 2021; Swain et al., 2017.

**Stages of development.** The second major theme identified in the present study was stages of development and how exposure to diverse circumstances influences children and adolescents' physical, emotional, and psychological development. Factors related to low SES can have an adverse influence on children and adolescent's trajectory of developing symptoms of PTSD.

**Early life exposure.** From an ecological approach, children are developed within the context of their environment, not in isolation. This means that the social world in which the child lives and the interaction between them and their environment create the essence of who they become (El-khondary et al., 2020). Factors such as personal characteristics, family structure, socioeconomic status and

available resources, and environmental events such as trauma are understood to play primary roles in the development of PTSD. Some studies highlight the role of early life exposure and how it increases the child's chances of developing PTSD during adolescence or later (Ben-Parat et al., 2013; El-khondary et al., 2020; Milan et al., 2012; Stupar, 2021).

The majority of studies included for review have found that their prevalence rates of PTSD among children were higher in LMIC than in comparison studies but lower in comparison to the adolescent population (Ainamani et al., 2021; Ben-Parat et al., 2013; Cuartas & Roy, 2019; El-khondary et al., 2020; Mclaughlin, 2012). Few found the prevalence rates of children in LMICs to be similar to those in HICs or even lower than those comparison studies (Milan et al., 2012). The studies found this to be predominantly due to the measures they used to assess PTSD symptoms. They recognised that children often experience avoidance and numbing scales that are more internal than explicit. This supports the notion that children often experience sub-dromal symptoms or PTSS and require different measuring criteria to qualify for PTSD diagnosis (Ainamani et al., 2022; Milan et al., 2012). In addition, children may not be as confident about their symptoms due to a lack of understanding. Therefore, findings might not reflect the true nature of such diagnosis among children, and more research is needed within this vulnerable population. It was also highlighted that children under six are more susceptible to neglect and mistreatment, especially in low SES communities. This ongoing trauma may disrupt the process of successfully reaching developmental milestones, which could make an individual more prone to emotional reactivity and vulnerability, adding to the severity of PTSD symptoms at a later stage (Ainamani et al., 2022; Enlow, 2013; EL-Khondary et al., 2020; Swain et al., 2017). This supports Kira's (2001) taxonomy of trauma and trauma assessment theory; as it states that these early life experiences negatively impact a child's value processing system, causing a vulnerability within the child. This vulnerability makes the child more susceptible to developing PTSD later in life.

***Transition to adolescence.*** The journey from childhood to adolescence is a challenging developmental transition. These involve physical, personality, emotional, and mental changes and social development (Enlow et al, 2013). The developmental theory aims to create an understanding of this process and how the various changes make an individual more vulnerable and susceptible to the negative impact of events, especially psychologically (Enlow et al., 2013). As these changes significantly impact an adolescent's cognition (dysregulated neurobiological responses), identity, self-concept, self-esteem, behaviour, way of relating to others, and general worldview, it makes sense that traumatic events may alter these factors negatively (McLaughlin, 2012; Mila, 2012; Pluck et al., 2014). When these aspects are negatively altered, they result in negative appraisals of themselves, others, and the world, resulting in cognitive and interpersonal vulnerabilities. Therefore, it is understood that adolescents with prior PTE or early life exposure are associated with a heightened susceptibility to developing PTSD (McLaughlin et al., 2012; Milan et al., 2012).

The majority of the studies included in the review found higher prevalence rates of full PTSD symptoms amongst the younger adolescent population compared to the older adolescent and child population (McLaughlin et al., 2012; Milan et al., 2012; Stupor et al., 2021). These studies highlight the need for the developmental approach and include more somatic reactions in DSM criteria (Milan, 2012). This is supported by the theory that during the transition to adolescence, certain changes that are considered internal stressors occur biologically. These internal stressors thus contribute to the instability of adolescents' mental health, making them less internally resourceful to cope with the external environmental stressors they face. In addition, as maturation occurs, certain defense mechanisms, such as splitting decline (Ben-Parat et al., 2013; El-Khondary et al., 2014; Stupar et al., 2021). This enables adolescents to be more exposed to the real events of the world, where they are required to make use of more mature defense mechanisms which may not be fully developed as yet. Older adolescents may have developed new mature defense mechanisms and coping methods.

Most studies included for review found higher rates of PTSD among younger adolescents in LMICs compared to other age groups. This is understood in terms of developmental theory due to early life exposure and the cognitive, emotional, and psychological impact it has on children's development, which may only manifest during the transitioning phase to adolescence, making adolescents more vulnerable to traumatic events and the development of PTSD more likely. These findings echoed the data collected from the literature. However, it is important to mention that few of the studies found lower prevalence rates of PTSD in LMIC among this population than others, or had similar rates to those in HIC. These studies further highlighted the importance of understanding these findings alongside contextual factors and the variability of developing PTSD across different countries to indicate that adolescents from different regions may have different propensities to developing and displaying PTSD symptoms. Further, the types of trauma these individuals are exposed to within different areas may influence these rates, and the gender of the individual experiencing the trauma (McLaughlin et al., 2012; Milan et al., 2012; Stupar, 2021).

**Table 9.**

*Theme three and sub-themes*

<b>Gender Differences</b>	<b>Source author(s)</b>
Trauma exposure outcomes in different genders	Ainamani et al., 2022; Cuartas & Roy, 2019; El-Khondary et al., 2020; Milan et al., 2012; McLaughlin et al., 2012; Swain et al., 2017.

**Gender differences.** Of the reviewed studies, it was evident that some findings were greatly influenced by gender, the type of trauma the different genders experience, the impact of traumatic

events, and their manifestation of PTSD symptomology. Although few studies identified no association between gender and the outcome, some showed some association, which gave rise to the third major theme. The studies indicated the following :

- The study by Ben-Parat et al. (2013) found gender to contribute to the development of PTSD in their first step of regression analysis. However, this was ruled out during the second step.
- Similarly, the studies conducted by Ainamani et al. (2022), Cuartas & Roy (2019), and Milan et al. (2012) found no significant association between gender and the outcome of PTSD among children and adolescents.
- The study by Carbone et al. (2019) supported previous findings in existing literature that male individuals are more likely to experience traumatic events. However, females have a greater likelihood of developing PTSD after traumatic exposure compared to males. They found this may be due to the type of traumatic event that females experience. Further, Carbone et al. (2019) found that the effect size was larger for females during childhood and adolescence than adults.
- Similarly, El-khondary et al. (2020) found boys to be more exposed to traumatic events. However, girls had a greater chance of developing and manifesting PTSD post-traumatic exposure.
- McLaughlin et al. (2012) found gender to be associated with PTSD outcomes in that females are more likely to develop PTSD than males. They explained this may be due to fear conditioning or differences in the limbic and physiological stress response systems and reactivity.
- Swain et al. (2017) found gender to be unrelated to PTS scores; however, they found females more likely to report and experience increased somatic symptoms, and intensity of such

symptoms, compared to their male peers. Swain et al. (2017) attributed this to different symptom appraisals, social roles, and biological differences.

These findings are consistent with that of previous literature regarding the findings being significantly varied and inconsistent. The findings from the studies included for review suggest that males will probably experience an increased amount of traumatic events. However, females have a greater likelihood of developing some, if not all, symptoms of PTSD after experiencing a traumatic event. Most studies utilising meta-analysis find gender to be an important risk factor, while studies using regression analysis find gender to be important initially or in the first step. However, as the analysis progresses, gender was discarded as an associated factor in the outcome of PTSD among children and adolescents.

**Table 10.**

*Study design.*

Study design	Sources author(s)
Quantitative methodological design	Ainamani et al., 2022; Cuartas & Roy, 2019; El-khondary et al., 2020; Milan et al., 2012; Stupar et al., 2021; Swain et al., 2017
Limitations of reviewed studies	Ainamani et al., 2022; Ben-Parat et al, 2013; Carbone et al., 2019; Cuartas,2019; El-Khondsry,2020; Enlow et al., 2013; Milan et al., 2012; Mclaughlin, 2012; Swain et al., 2017

**Study Design.** The articles included for review in this present study used various methodological designs to ensure they answered their research questions and reached their study outcomes. However, one methodological design was favoured over the others, which gave rise to the fourth major theme, study design, and subthemes: quantitative methodological designs and the limitations of the reviewed studies.

***Quantitative methodological design.*** All of the studies procured for review used a quantitative methodological design. Most of the studies utilised methods of gathering data via standardised structured face-to-face interviews that were based on various psychometric measures such as the ULCA PTSD reaction index and the PCL (Stupar et al., 2021). While some used self-administered questionnaires and surveys. All studies used statistical analysis in order to answer their research questions and prove certain relationships between variables. No studies included in this review made use of a mixed method or qualitative methodological design or data analysis. This highlights a clear gap in the literature.

This may be due to the research questions the included studies had to answer and the amount of data and participants they needed to ensure the study's reliability, validity, and generalisability. Quantitative methods allow researchers to simplify the process of gathering data, increase the number of participants (large sample sizes), and enable studies to utilise certain analytical and objective methods to analyse data to prove a relationship between variables (Milan 2013; Stupar et al., 2021). The benefit of using such a study design is that researchers use psychometrically sound measures and rigorous scientific methods to gather and analyse their data. Specifically, using measures such as the PTSD-RI, ULCA, and PCL allowed researchers to assess specific traumatic events and symptoms and to estimate rates based on the latest DSM-5 criteria. This standardisation allows for findings to be more objective, accountable, valid, reliable, and generalisable to the general public of the same population (Stupar et al., 2021).

However, there is a clear limitation to the sole reliance on psychometric measures. The reliability of such methods may be impacted by flawed recall, hesitance, inattention, deliberate distortion, and misunderstanding of certain questions. This may have led to an underestimation of PTSD among this population. Although the majority of these studies included an interview structure, the collateral less structured interview could be beneficial in producing supportive data, a more accurate understanding of the symptoms experienced by children and adolescents, and a more accurate diagnosis of PTSD (Ainiamani et al., 2021; Cuartas & Roy, 2019; El-Khondary et al., 2020; Swain et al., 2017).

***Limitations of the reviewed studies.*** The majority of the studies included for review made reference to the limitations of their studies to ensure that their findings are interpreted in light of the stated limitations. This triggered the importance of considering such factors when analysing results from secondary data, especially with regard to the present study and gave rise to the second subtheme, limitations of the reviewed studies.

Some of the studies included for review used a cross-sectional study design. The nature of this design is limiting as it does not allow researchers to assess the extent to which variables are related to each other. This means that researchers could not rule out that omitted variables may correlate with mental health outcomes of PTSD among children and adolescents. However, some of the studies in this review shed light on causal relations through correlational, multivariate/dimensional, and prospective studies overcoming the above-mentioned limit (Ainamani et al., 2020; Cuartas & Roy, 2019; Swain et al., 2017). What was evident is that there were no longitudinal studies included in this review. It would thus be beneficial for prospective studies to conduct follow-up research with the same participants to gain a more accurate insight into the long-term developmental implications and perhaps the trajectory of PTSS/PTSD among children and adolescents.

Another overall identified limitation was the use of quantitative methodological designs. Although some studies tried to overcome this by gathering data using structured interviews, it does not

allow spontaneous answering. Using quantitative measures resulted in most of the studies relying on DSM-IV criteria and their conceptualisations of PTSD, using a dichotomous diagnosis. Thus children and adolescents were restricted in their responses of yes and no to specific symptoms identified in the DSM-IV criteria. This is restrictive in many ways; it neglects the chance of exploring and including subclinical symptoms, results in an underestimation of PTSD rates, and limits statistical power (Ainamani et al., 2022; Cuartas & Roy, 2019; El-khondary et al., 2020; Milan et al., 2012; Stupar et al., 2021; Swain et al., 2017).

Lastly, there was an evident limit in the standardisation of measurement of low socioeconomic status (indicators) across the status included for review. This allows for variation within the study population as the studies had different inclusion criteria for their participants. For example, one study used parental education level and employment status as an LSES measure, whilst others used zip codes and hospital payment methods, household income, hospital place of residence (exposed to war), or convenient sampling methods (orphans and street children). This limitation may decrease the generalizability of the studies as well as the reliability of the findings as there is no consensus on what depicts low SES. This will be included in the general limitation of this present study.

**Table 11.***Study outcomes*

Study outcomes	Source (s) /Author (s)
Relationship between Low SES and PTSD amongst children and adolescents	Ainamani et al., 2022; Carbone et al., 2019; Cuartas & Roy, 2019; Ben-Parat et al., 2013; El-Khondary, 2020; Enlow et al., 2013; Milan et al., 2012; Mchlaughin, 2013; Mwanja, 2017; Pluck et al., 2014; Stupar, 2021; Swain et al., 2017.

**Study outcomes. *Relationship between low SES and PTSD amongst children and adolescents***

- Ainamani et al. (2022) found high prevalence rates of PTSD among children in Uganda (LMIC) (60%). Study outcomes include that children with a history of maltreatment are likely to meet PTSD diagnosis. Predictor variables were witnessing intimate partner violence, living in more than two homes, and being cared for by non-relatives. Similarly, Ben-Parat et al. (2013) found higher PTSD rates among adolescents in LMICs than those in HICs. The study further identified risk factors and protective measures for developing PTSD: age, community involvement, perception of danger, and sense of mastery. Cuartas and Roy (2019) also found larger effect sizes of PTSD among adolescents exposed to violence and those living in multidimensionally poor households. In agreement, Enlow et al. (2013) found trauma exposure, sociodemographic risk (low income, education, and employment), and lower developmental competence to predict more PTSD symptoms. Pluck et al. (2014) found high prevalence rates of PTSD amongst their population of street children who experienced ongoing interpersonal violence with no forms of treatment. The study further found higher cognitive function to be associated with the development of PTSD.

- Milan et al. (2013) found lower rates of PTSD within their population who had been exposed to traumatic events, suggesting that exposure to trauma is not the only significant factor in the prediction of PTSD. Milan et al. (2013) identified certain risk factors, environmental stressors, and symptomatic responses as mutually influential and interactive in predicting the outcome of PTSD among children and adolescents.
- El-Khondary et al. (2020) revealed that experiencing trauma was a significant factor in the development of PTSD in children and adolescents. Additionally, low SES indicators (parental education level and income) greatly influenced the direction and strength of the PTSD outcome.
- McLaughlin et al. (2012) found the highest trauma exposure rates to be among adolescents not living with both biological parents. They further found predictors of PTSD to be previous trauma exposure, female gender, and vulnerability to distress.
- Stupar et al. (2021) noted that younger adolescence (age) and increased traumatic exposure, for instance, experiencing war-like events and sexual assault, are the most significant predictors of PTSD amongst adolescents. However, many adolescents experience subclinical symptoms of PTSD (PTSS) after exposure to other types of trauma.
- Swain et al. (2017) found that 10% of adolescents experience PTSS while 6% were diagnosed with PTSD. Gender appeared to be an unassociated factor in PTSD. The focus was apparently increased traumatic exposure and existing vulnerabilities.
- Carbone et al. (2019) found lower-income adolescents living in higher-income areas to have greater odds of PTSD – suggesting income disparities to be a predictor of PTSD.
- Mwanja (2017) found no significant association between socioeconomic status and PTSD. The study highlights the need for age-appropriate interventions post-trauma that are suited to the nature of the trauma.

Across the studies included for review, it is evident that the majority reported some association between low SES and PTSD. Half of the studies showed a positive association between increased traumatic exposure and the type of trauma experienced. In contrast the other half focused more on the contributing factors that certain low SES indicators made to the outcome of PTSD, such as low income, living in more than two homes or staying with non-relatives, limited access to resources, and parental education/employment. One study, in particular, found no association between low SES and the outcome of PTSD, suggesting treatment to be an important factor in the recovery process, while one study found income disparities to be the greatest predictor of PTSD amongst children and adolescents. The consensus is thus that children and adolescents living in low SES are more susceptible to PTSD due to the various associated factors that interact to produce such an outcome. With limited means of treatment, those meeting subclinical symptoms at an earlier stage are likely to develop full PTSD later in life. These findings support the theory used as the theoretical framework of this study; taxonomy of trauma and trauma assessment and further highlights the need to utilize the organized structure of trauma's to enhance understanding of trauma exposure and PTSD during different developmental stages.

## **Conclusion, limitations, and recommendations**

### **Conclusion**

The present study aimed to map and synthesise studies that have demonstrated low socioeconomic status to be a predictor of the trauma outcome, post-traumatic stress disorder, in children and adolescents. This was possible by analysing the following:

- Studies that have demonstrated a relationship between low SES and PTSD among children and adolescents.
- The situational (e.g. early life exposure) and/or contextual (types of SES indicators) factors that contribute toward trauma outcomes (PTSD) in children and adolescents.
- Key gaps in the literature to inform future research with regard to incremental validity of SES measures when determining a child or adolescent's complete victimisation profile.

Twelve articles met the inclusion criteria of this study, were procured for review, and were analysed in this scoping review. It was evident that there were similarities across the studies, especially with regard to contextual factors, the role of gender and age, study designs and their limitations. Because of these similarities, themes could be identified in relation to the study objectives of this study.

1. The first theme identified across the studies was the structural risk and protective factors. This theme addressed the second objective of this study. It was evident that the following risk and protective factors played an important role in developing or mitigating PTSD amongst children and adolescents; parental instability, limited internal and external resources, and increased interpersonal violence. Although these concepts are not direct measures of low SES, they should be considered indirect low SES measures as they are more prevalent in low SES areas. It was also apparent that there was no universal measure

of low SES, and that the studies included for review used multiple SES indicators to measure their participants' status. Multiple socio-demographic psychometric measures were also used, some embedded into the trauma scales.

2. The second theme that was identified was the stages of development. This theme was divided into two subthemes: early life exposure and the transition to adolescence. This major theme addresses the second objective of this study, specifically the contextual factors that contribute to the trauma outcome of PTSD. Early life exposure, specifically ongoing trauma, increases a child's risk of developing PTSD at a later stage, as this trauma exposure alters the biological make-up and psyche of a child. These experiences alter their perception of themselves, others, and the world, leaving them slightly susceptible to the negative impact during the transitioning phase of adolescence (biological, psychological, physiological changes) when defenses like splitting come undone. This younger adolescent phase appeared to be the most 'vulnerable' population. However, previous trauma was required.
3. The identified third theme was the trauma outcome in gender differences. This theme also added to the second objective of this study and emphasised that although males are likely to be more exposed to traumatic events than females, females are more likely to develop PTSD and experience increased severity of symptoms. This may be due to the biological/psychological differences between the genders, the social and developmental roles and the type of traumatic events the different genders experience.
4. The fourth identified theme was the study design of all the articles which aligned to the quantitative methodological design that was used by all studies, and the limitations thereof. This theme addressed the third objective of this study because it highlights the limitations

of the studies used as secondary data, allowing the identification of gaps in the literature, which can inform future recommendations. This will be elaborated on in the limitations and recommendation section below (5.2 and 5.3).

5. This study's fifth and final theme was the study outcomes, especially the relationship between low SES and PTSD among children and adolescents. This theme addresses the first objective of the study and highlights that most of the studies found a positive association between low SES and PTSD. It increases the chances of interpersonal violence interacting with environmental stressors and other vulnerabilities to predict the outcome of PTSD. This theme also addressed the second objective of this study as it identified low SES measures that largely contributed towards the outcome of PTSD such as living in more than two homes and/or non-relatives (parental instability), low household income, low parental education level and unemployment status, and neighbourhood income disparities. The consensus is that children and adolescents, as a vulnerable population, are more susceptible in a low SES environment because it often ensures a maltreated and unsupervised environment, exposure to violence, and limited guidance or access to treatment and recovery.

## **Limitations**

All of the articles reviewed in this scoping review were conducted in various countries worldwide, thus located globally and locally. These include Europe, South America, the United States, Asia and Africa. However, as indicated in the results section, only 1 out of 12 studies were conducted in Asia, and only 3 in Africa, while the majority were located in America. This may be due to the large concentration of scientists, foreign graduates, and well-funded research institutes.

According to the World Bank's current ranking in terms of socioeconomic status, 27 countries worldwide have been ranked as low-income economies, and 23 of those countries are located in Africa.

Interestingly, none of these areas are included in this literature review, indicating a gap in this area of research. Further, Africa also contains 21 of the world's 55 lower-middle-income countries. Thus, it is important for future research to further exploration of such areas (World Bank, 2022). In addition, only one study was conducted in Asia. However, many other countries within this continent are understood to have low socioeconomic status despite having one of the fastest-growing development rates in the world, making it vital to explore since previous research indicates that income disparities are a high-risk factor for the development of PTSD (see results; summary of outcomes) (Carbone et al., 2019).

All of the articles included in the present study were conducted in LMIC countries, therefore, it may be assumed that a shortage in studies conducted in certain areas could be due to factors such as lack of resources, accessibility to population, cultural and language barriers and appropriate psychometric measures. Therefore, the study location was identified as a gap in the existing literature. The three studies that were identified in Africa as the topic of interest mostly focused on investigating PTSD symptoms and prevalence rates within communities but were not specific in terms of children and adolescents. Thus, a relationship could be identified but not type, strength, or direction. Further, only two studies included samples from various LMICs and compared them to HICs. This may also be an area worth exploring to identify whether low SES is a mediating, moderating, or predicting variable, as well as to make the findings generalisable to the general population. It is suggested that more comparison studies could provide insight into the effect of trauma on the population of LMICs vs. HICs.

The second gap identified within the reviewed literature was the study design. Within the process of finding and analysing the studies procured for review, it was apparent that most studies available in this area of research and that all 12 studies eligible for this review were quantitative. None of the studies used a mixed method or qualitative approach. Therefore, this is a clear gap within this area of research as the free flow of information from unstructured interviews may allow for more accurate information as well as great insight into the authentic experiences of children and adolescents

with symptoms of PTSD and may further aid our understanding of children's somatic responses to trauma and how it impacts their development. Another type of study design excluded from this review was the longitudinal design. Although one study used data from a pre-existing longitudinal study, a true study of such nature would allow for insight and understanding of the trajectory of children's post-trauma exposure and the development of PTSD.

The last identifiable gap was related to the age population of the reviewed studies. As seen in Figure 7 above, it is evident that most research was conducted between the ages of 8-18. Further, only (n=200) children between the ages of 5-6 were included in this review. While searching for articles, it was evident that young children were the least researched. In addition, no articles were procured for review between the ages of 6 and 8. Therefore, in order to create a better understanding of how PTSD and PTSS manifest amongst children within low SES communities, further research within this age group is required.

While the studies that were eligible for review and included within this present study were found to have various strengths and produced enlightening results within this field of study, limitations were identified by their respective researchers. These limitations included concerns regarding the use of small sample sizes and their generalisability, using sampling methods such as convenience sampling, which has the potential for selection bias, data collection methods, specifically the reliability of self-reporting measures, especially in children and adolescents, using the DSM IV and a dichotomous diagnosis and possibly missing subclinical symptomatology, using structured interviews and reporting bias (Enlow et al., 2014; Milan et al., 2013; Mchlaughlin et al., 2014).

With regard to this present study, it is evident that only 12 articles were included as data based on the inclusion and exclusion criteria. This number is somewhat limited, which may present some limitations concerning the generalisability of its findings. It is also evident that some of the variables involved in this study (i.e. low SES, PTSD) and the vulnerable population (children and adolescents), have resulted in a limited pool of articles that could meet the inclusion and exclusion criteria. A low

SES environment poses many research challenges, such as limited resources. Further, the variable of PTSD, specifically among the vulnerable population, poses another challenge for research and ethics.

### **Recommendations**

The findings of this scoping review have identified specific themes that showcase the investigations done within this area of research. With the above-mentioned gaps and limitations in mind, future research in this field should address shortfalls using larger sample sizes gathered via random and selective sampling rather than convenient sampling. This will increase the overall population representation and generate results more generalisable to the general public and various contexts.

Population samples should also have an inclusion criterion of a few low SES indicators that are standardised to ensure universal measurement and understanding of low SES, further increasing the reliability and generalisability of findings. Based on the above-mentioned limitation of localities included in the present study, it would be advisable to conduct research in the low SES areas identified by the World Bank. This may allow for greater insight into the true indicators and measures of low SES and the impact of such factors on the development of PTSD.

To establish whether low SES is a predicting variable most studies are quantitative; however, the mixed methods approach would allow less structured interviews that can be used to ensure inclusivity of all symptoms, and the possibility of probing, especially with children and adolescents who may be uncertain about the symptoms they are experiencing. This would add to the existing body of knowledge of subclinical symptoms of PTSD. Prospective studies should also make use of longitudinal studies to analyse the trajectory of children's experience of PTSD and the long-term impacts thereof. It would also be highly useful for future studies to use Kira's (2001) Taxonomy of trauma and trauma assessment theory as a foundation for their work as it provides a pattern of organization that assists in understanding traumatic exposure, and its' related specific and potential

effects on the various areas of functioning in the different stages of development. In addition researchers should make use of multiple psychometrically sound test scales with high test-retest validity to reduce recall and desirability bias in responses to these instruments.

Lastly, in terms of treatment and recovery, it will be invaluable for future research to determine how best to reach, treat and work with such a vulnerable population within low SES localities where access to resources is limited and where professional healthcare workers are understaffed and overworked. Research focusing on ways in which to curb the challenges faced by children and adolescents within these areas could greatly add to the existing body of knowledge, and further inform innovative ways of planning treatment and assigning of resources.

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## APPENDIX A: Certificate of Editing



Date: 4 September 2023

**DECLARATION OF EDITING**

I, Professor Margaret Williams, hereby declare that I did the language editing on the dissertation detailed below. The manuscript is for submission purposes in partial fulfilment of the requirements for the degree Master of Social Science (Counseling Psychology) at the College of Humanities, University of KwaZulu-Natal. The manuscript has been edited for English language, grammar, syntax, punctuation, and spelling. Formatting was conducted on the reference list, and technical editing guidance and formatting have been provided.

**TITLE**

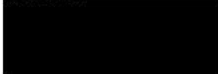
**Low socioeconomic status (SES) as a predictor of post-traumatic stress disorder (PTSD) in children and adolescents: A scoping review**

**AUTHOR**

**Ms A Slabbert**

Disclaimer: The author is free to accept or reject my changes to the document after editing and referencing. However, I do not bear responsibility for revisions made to the document after my edit and full reference check on **4/9/2023**

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