
| RESEARCH ARTICLE**Trauma-Informed Care And Post-Trauma Recovery****Festus Uwakhemen Asikhia***LLM, MSc MBA, PhD, Post Doctorate Fellow School of Social and Human Studies, Atlantic International University***Corresponding Author:** Festus Uwakhemen Asikhia, **E-mail:** drfestusasikhia@gmail.com**| ABSTRACT**

Traumatic events have high emotional, cognitive and behavioural impacts, and psychological trauma is a huge public health problem affecting people throughout their lifetimes. One evidence-based framework that has surfaced is trauma-informed care (TIC) which is characterized by recognizing the pervasive nature of trauma and taking steps to promote safe, supportive, and person-centered interventions and recovery. Using current evidence of the pathways between trauma exposure and downstream affective and cognitive symptoms, this paper explores possible neurobiological, psychological and social mechanisms of post trauma recovery. It also provides a comparison of the effectiveness of two interventions commonly used for trauma treatment: Trauma Focused Cognitive Behavioral Therapy (TF-CBT) and Eye Movement Desensitization and Reprocessing (EMDR) focussing on efficacy, clinical practice and limitations. The paper also discusses the implementation hurdles to offering trauma-informed care at the community and primary care, such as professional staffing shortages, lack of funding, stigma, cultural barriers, and the lack of access to trauma treatment. A Case Study on Post-Trauma Recovery Syndrome is provided to support the application of trauma-informed clinical practices on a day-to-day basis. This data suggests that both treatments—TF-CBT and EMDR—have been found to be very effective in the alleviation of trauma-related symptoms, provided they are implemented correctly; however, implementation challenges persist, inhibiting the forceful extension of the study's findings to equitable universal access to treatment. The paper ends by offering recommendations for enhanced policy and practice in the United States, greater efforts to scale and promote evidence-based, trauma-informed clinical practice, and unexplained research gaps that will advance future trauma-informed mental health care knowledge.

| KEYWORDS

Trauma-informed care; psychological trauma; post-trauma recovery; post-traumatic stress disorder (PTSD); Trauma-Focused Cognitive Behavioral Therapy (TF-CBT); Eye Movement Desensitization and Reprocessing (EMDR); primary care; community mental health.

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1. Introduction

Around the world, psychological trauma is beginning to be seen as one of the most important causes of mental health crises and dysfunction. Trauma can be caused by a single stressful incident, repeated traumatic experiences or ongoing interpersonal violence that is so severe and prolonged that the person cannot handle it. Some of the most common traumatic experiences that children and adolescents can face are childhood abuse and neglect, domestic violence, sexual assault, war, natural disasters, serious accidents and deaths of loved ones. While some people recover after traumatic events happen, others have long-term emotional, cognitive, behavioural and physiological reactions that make it difficult to function and lead a satisfying life (World Health Organization [WHO], 2022). These negative outcomes have put the spotlight on incorporating a trauma-informed approach within health, and social care systems which emphasizes safety, empowerment and recovery.

The effects of trauma on the brain and body can be long-lasting, affecting emotional experiences, memory, stress reactions and other areas of life. Anxiety, PTSD, impaired concentration, and maladaptive coping behaviors are some of the many effects of trauma that include changes in the functioning of the hypothalamic-pituitary-adrenal (HPA) axis, increased activity of the amygdala, impaired functioning of the hippocampus, and decreased regulation by the prefrontal cortex (Yehuda et al., 2015). This neurobiological process frequently has psychological ramifications, including intrusive memories, mood disturbances, precautions, much greater hypervigilance, in addition to negative self-views and beliefs. As a result, left untreated, trauma not only impacts mental health, it also breeds chronic physical health problems, substance abuse, low school performance, joblessness and escalated health care use.

TIC, rooted in the scientific evidence of trauma and trauma's pervasive influence on health, is an approach that mobilizes in various ways to meet the needs of those who have experienced trauma and the children with whom they work. TIC is built on the scientific understanding of trauma and trauma's impact in a field of service, and requires considering trauma in multiple ways to meet the needs of the people impacted by trauma and the children they serve. TIC is about going beyond symptoms or diagnoses, including understanding what has happened to a person, avoiding re-traumatizing him/her, building resilience, and creating a therapeutic relationship with the person. Organizations that apply trauma-informed principles work to build environments that are physically and emotionally safe, are caring and trustworthy, have peers available to support, are culturally responsive, engage in collaboration and empowerment (Substance Abuse and Mental Health Services Administration [SAMHSA], 2023). These methods have proven effective in higher patient engagement, treatment adherence, and better recovery in various health care and community settings.

The treatment methods that are available and found to work are called evidence-based treatments and among these, two are widely used and recommended for the treatment of trauma-related disorders: Trauma-Focused Cognitive Behavioral Therapy (TF-CBT) and Eye Movement Desensitization and Reprocessing (EMDR). Both interventions have been consistently shown to be effective in decreasing symptoms of PTSD and improving emotional functioning but some differences exist regarding the duration of treatment, mechanism of action, target populations and requirements for implementation. Determining which of these therapies is most effective is imperative for providers, program planners, and policymakers who want to offer access to effective, patient-focused and accessible trauma care.

Trauma-informed primary and community health care have not yet been widely adopted, though efforts have been made to incorporate it into care. Insufficient evidence-based trauma services, a lack of qualified individuals and professionals, financial limitations, stigma of mental illness, and a lack of equitable access remain a significant impediment to delivering evidence-based trauma services, especially to underserved populations. Coordinated policy work, the development of the health workforce, integrated models of care and on-going investment in implementation research are needed to overcome these barriers.

This paper reviews pathways from trauma exposure to subsequent affect and cognitive manifestations, reviews the efficacy of trauma-focused therapies, including TF-CBT and EMDR, and considers some of the implementation challenges. This paper reviews pathways from trauma to subsequent affective and cognitive outcomes, considers the effectiveness of trauma-focused therapies, especially TF-CBT and EMDR, and discusses implementation challenges in the community and primary care settings. There is also a case study to demonstrate how the trauma-informed principles can be applied in practice: with the recovery of post-trauma recovery syndrome. The paper summarises the evidence-based findings and recommendations that will inform the development of the trauma-informed policies, enhance clinical practice and focus the next generation of mental health research.

2. Mechanisms Linking Trauma Exposure to Downstream Affective and Cognitive Symptoms

2.1 Understanding Psychological Trauma

Psychological trauma is the emotional and psychological response to an event or events that is/are so overwhelming to the person that they are unable to cope with or to feel safe, well or at risk of not surviving. Traumatic experiences could be from acute events to road traffic accidents, natural disasters, violent assaults and also from prolonged exposure to negative events in their lives, such as childhood abuse, domestic violence, war, neglect, and chronic emotional maltreatment. The American Psychiatric Association includes three types of trauma: acute trauma which occurs due to a single traumatic event, chronic trauma which occurs when a person experiences repeated exposure to distressing experiences, and complex trauma which are multiple, perpetrating interpersonal traumatic events primarily in childhood (APA, 2022). Not all trauma will lead to mental illness however repeated or traumatic experiences can significantly increase the risk of mental illness, specifically PTSD, depression, anxiety disorders, substance use disorders and cognitive impairment.

Trauma affects a variety of psychological functions, impacting on emotional regulation, memory, attention, and decision-making. Things vary from person to person, depending on age, genetic predisposition, ability to cope, prior trauma and social support. Trauma has downstream effects (WHO, 2022), including emotional and cognitive symptoms, which would perpetuate emotional distress and functional impairment if not also a focus of treatment. Successful treatment of trauma would require addressing the

biological, psychological, and environmental factors that could sustain emotional distress and functional impairment, in addition to enabling the healing of traumatic memories, so doing would address the downstream effects (World Health Organization [WHO], 2022).

2.2 Neurobiological Mechanisms

Neurobiological alterations in the brain and the body's stress-response systems have a great impact on the association between trauma exposure and affective and cognitive symptoms. Traumatic events stimulate the hypothalamic-pituitary-adrenal (HPA) axis that regulates the physiological response to stress via cortisol and other stress hormones. In normal times, cortisol frees up energy, makes one more alert and ready to deal with threats, ultimately settling to normal levels once danger is gone. Severe and/or repeated trauma can throw off this cycle of cortisol though, leading to chronic cortisol imbalances. High or low levels of cortisol have been linked with anxiety, depression, PTSD, sleep problems, problems focusing and heightened emotional response (Yehuda et al., 2015).

In addition, trauma affects the way the amygdala, a structure in the brain responsible for stimulus processing of fear and identification of threat, works. Numerous neuroimaging studies have shown hyperactivity of the amygdala in persons who have survived trauma, especially persons with PTSD. The amygdala response of hyperactivity causes people to respond to neutral events as if they were threatening, resulting in constant hypervigilance, exaggerated sensitivity to startling situations, intrusive fear perception and heightened emotional sensitivity. While adaptive responses to real-time threat, these responses are maladaptive when persisting long after the traumatic event has concluded, and cause marked impairment in social functioning, employment, and daily functioning (Shalev et al., 2017).

The hippocampus is another key neurobiological impact of trauma, and it is essential in forming memories and learning within context. Chronic exposure to stress hormones has been shown to inhibit neurogenesis within the hippocampus and can also reduce hippocampal volume, that helps the brain divide memories by time or location. As a result, traumatic memories are usually sperrerszählt and intense, leading to recurring flashbacks, nightmares, and intrusive memories. Many survivors can have trouble telling the difference between the past trauma and safety they are experiencing, so the typical day can raise the level of their emotional response.

The prefrontal cortex is also damaged by trauma, which leads to executive dysfunction, poor planning, attention difficulties and trouble with impulse control and emotions. A decreased activation of the medial, and dorsolateral, prefrontal cortex decreases one's ability to control fear responses from the amygdala. This imbalance causes problems with concentration, decision making, emotional impulsivity, poor problem solving and inability to control negative feelings. Impaired performance in occupational activities, school and social situations may result from executive dysfunction, leading to a decrease in overall Quality of Life (Bisson et al., 2019).

Trauma-related disorders also have an important role for neuroplasticity. Structural and functional brain changes may result from long-term trauma, but by using the right therapies, the brain can reorganize and heal. PTSD response focused treatments like Trauma-Focused Cognitive Behavioral Therapy (TF-CBT) and Eye Movement Desensitization and Reprocessing (EMDR) are techniques that have been proven to promote adaptive neural processing, emotional regulation skills, and decrease PTSD symptoms through reconstructing memory and cognitive functioning patterns. These results showed that the brain's effect can be deeply damaged by trauma, but following these guidelines and giving these treatments in a timely manner brings promising opportunities for recovery-ing brain function.

2.3 Psychological Mechanisms

Trauma gives rise to overwhelming psychological changes which end in affective and cognitive symptoms, too. The cognitive model of trauma is one of the most widely accepted explanations and theorizes that trauma experiences change in fundamental ways how a person thinks about the safety, trust, control and self-worth. Survivors often also internalize maladaptive thoughts of exaggerated guilt, shame, hopelessness, mistrust, and self-blame. These maladaptive interpretations drive the anxiety and depressions symptoms and keep the psychological distress going — without realizing traumatic events are over, not happening now.

Another important mechanism is fear conditioning. If a traumatic event is linked to an environmental cue by classical conditioning, this forms an association. In trauma, this association is made with environmental cues. Later, sounds, places, or even certain smells can cause strong fear reactions to a normal but non-threatening stimulus. People tend to dodge reminders of the traumatic experience to minimize emotional distress. Avoidance does short-term alleviate anxiety but not anxiety processing and can strengthen long-term PTSD like memories.

Trauma also negatively affects emotional regulation, which can result in a person struggling with the identification, expression, and regulation of emotions. Anger, sadness, fear, irritability, or emotional numbness might last for a long time after the chemotherapy and radiation have been completed. Emotional instability leads to interpersonal conflict, substance abuse, impulsive behavior and diminished social functioning. Derealisation, fragmented memories, or depersonalisation are other common dissociative reactions of many people when faced with overwhelming experiences. Dissociative symptoms can help lower immediate distress during a traumatic event, but ongoing dissociative experiences can negatively affect the consolidation of the memory that would be beneficial for psychological adjustment and affect the development of an identity. Together, all of these psychological responses provide an explanation for why trauma often leads to the development of depression, anxiety, PTSD, poor focus, decreased decision making abilities, and poor quality of life.

2.4 Social and Environmental Mechanisms

Social and environmental risk and/or protective factors also influence recovery. ACES, such as abuse, neglect, parent substance misuse, domestic violence, and household dysfunction, are linked to an elevated risk for depression, PTSD, and/or anxiety disorders, substance misuse, and/or chronic morbidity in later life (Centers for Disease Control and Prevention, 2024). At a similar level, people experiencing poverty, homelessness, a history of community violence, being in armed conflict situations, forced displacement, discrimination, and a lack of access to health care are subject to repeated stressors which exacerbate affective and cognitive symptoms.

On the other hand, families that offer support, strong peer networks, and involvement in the community, as well as a connection to trauma-informed health care services, can help mitigate the psychological effects of trauma. Social support engenders adaptive coping while enhancing emotional regulation and treatment engagement that leads to better long-term recovery. Trauma experience, expression, and treatment is shaped by cultural beliefs, indicating the need for culturally-responsive and person-centered trauma interventions. Thus, TIC goes beyond clinical treatment to account for and create conditions that encourage healing and resilience among all children and youth and build relationships that are safe and sharing. The combination of a biological, psychological, and social viewpoint gives a holistic view of trauma and the foundation for creating effective prevention programs and evidence-based interventions that have a positive impact on emotional functioning as well as cognitive, brain, and thinking abilities.

3. Comparative study of the effectiveness of trauma-focused therapies

Trauma focused psychotherapies are the gold standard therapies used to treat the emotional, cognitive and behavioral effects of traumatic events including PTSD. Trauma-informed therapy will assist in resolving traumatic memories, modify thoughts and beliefs associated with trauma, decrease avoidance behaviours, and promote more sustainable coping strategies when compared to supportive counselling. Trauma-focused therapies are currently recommended as the first-line therapy based on strong evidence and long-term effectiveness by the American Psychological Association (2022), the U.S. Department of Veterans Affairs and the U.S. Department of Defense (2023) and the World Health Organization (2023). Some of the most commonly used therapies include TF-CBT, EMDR, CPT, and Prolonged Exposure Therapy (PE). While both types of therapy have shown significant clinical gains, they vary across therapy, population and implementation requirements.

3.1 Trauma-Focused Cognitive Behavioral Therapy (TF-CBT).

One of the most well researched psychological treatments for children and adolescents in the context of traumatic experiences like abuse, neglect, domestic violence, traumatic grief, and natural disasters is referred to as Trauma-Focused Cognitive Behavioral Therapy (TF-CBT). It combines traditional CBT with CBT-T trauma specific skills that focus on emotional regulation, maladaptive thinking and behavioral challenges. The therapy is based on the PRACTICE model, which includes: psychoeducation, parenting skills, relaxation, affective regulation, cognitive coping, trauma story construction, in vivo exposure, conjoint caregiver-child sessions, and enhancement of future safety.

TF-CBT focuses mainly on a cognitive focus to understanding the relationship between thoughts, feelings and behaviors, and gradually guiding the processing of a trauma that can occur in a safe therapeutic context. This is because supportive family

relationships during and after treatment supports the ability to adhere to therapy and build coping skills at home. Many randomized controlled trials (RCTs) have shown that PTSD symptoms and anxiety, depression, behavioral problems, emotional distress are significantly reduced after the end of treatment with TF-CBT (Cary & McMillen, 2015). Additionally, systematic reviews show that some gains occurring from treatment shift over time, therefore TF-CBT is one of the most effective treatments for children experiencing trauma.

However, TF-CBT has some drawbacks. Is this intervention supervised and performed several times with trained clinicians and outcome is only possible through active involvement in the intervention by both the client and the caregiver? It can be difficult to implement the treatment in families facing conflict and/or low parent involvement. Despite this, TF-CBT is still the most

evidence-informed and flexible clinical trauma-informed practice for children and adolescents who are exposed to trauma, due to its empirical support and adaptability within diverse clinical contexts (APA 2022).

3.2 Eye Movement Desensitization and Reprocessing (EMDR)

One other widely recommended therapy for PTSD and trauma related disorders is called Eye Movement Desensitization and Reprocessing (EMDR) therapy. The approach used for the therapy is the Adaptive Information Processing model, which suggests that traumatic experiences are stored in an abnormal way in the brain and this interferes with regular emotional processing. EMDR supports adaptive memory processing by bringing awareness, recollection of trauma and bilateral stimulation (usually eye movements, tactile or alternating tones or auditory stimulation).

The EMDR standardized protocol includes eight phases: phase 1: history, phase 2: preparation, phase 3: assessment, phase 4: desensitization (rapid vibrators), phase 5: installation of positive beliefs, phase 6: body scan, phase 7: closure and phase 8: reevaluation. In contrast to cognitive behavioral therapies, EMDR involves a lesser amount of verbal elaboration of traumatic experiences, and therefore is particularly effective for people who have difficulties with verbalization of traumatic material.

There is significant evidence for the effectiveness of EMDR with children and adults in reducing PTSD symptoms, depression, anxiety and emotional distress. The results of a meta-analysis are similar as those seen with trauma-focused cognitive behavioral therapies, and one study indicated that certain population subgroups had more rapid symptom reductions (Cuijpers et al., 2020). Rather, EMDR has been proven to work with military, refugees and survivors of sexual violence and people impacted by natural disasters. The effective implementation will require the specialized training and certification of clinicians, and may not be available in community and primary health care settings. In spite of its difficulties, EMDR is recommended as a first line of treatment for PTSD by WHO (2023) and VA/DoD (2023) due to its proven clinical effectiveness.

3.3 Cognitive Processing Therapy (CPT)

Cognitive Processing Therapy (CPT) is a cognitive-behavioral therapy that was designed and developed primarily for adults with PTSD. It emphasizes uncovering and changing negative beliefs acquired later in traumatic situations. Trauma survivors often have "stuck points" or negative thoughts which involve guilt, shame, trust, safety, control, and self-worth. CPT helps people to investigate these thinking patterns and change them and replace them with more balanced thoughts.

CPT has been found to be effective in lowering levels of PTSD symptoms, depression, and trauma-related distress and enhancing psychological functioning consistently across studies (Resick et al., 2017). The therapy is especially effective with veterans of the military service and survivors of interpersonal violence. It does rely on cognitive restructuring and written assignments which could be challenges for persons with severe cognitive impairment and/or of low literacy level.

3.4 Prolonged Exposure Therapy (PE)

Prolonged Exposure (PE) is a treatment approach that is based on emotional processing theory and is evidence-based. The therapy is designed to alleviate the fear that sets in at the scene of trauma by repeatedly exposing the individual to the trauma and in situations involving trauma, but doing so in a controlled manner. Usually there is a combination of imaginal exposure (rehearsal of the trauma) and in vivo exposure (gradual exposure to avoided but "safe" situations).

Many studies have shown the effectiveness of PE in decreasing the intensity of PTSD symptoms, anxiety, depression and avoidance behaviors (Foa et al., 2019). Repeatedly challenging traumatic memories in a supportive therapeutic context helps individuals grow to very gradually realize that the cues associated with the trauma are not necessarily signs of an imminent threat, thereby helping them process trauma-related experiences. However, some people will experience emotional distress during exposure sessions that could cause difficulties with attending treatment, so there is a need for some clinical sensitivity in how the treatment is delivered and ensuring treatment is personalized.

4. Community and Primary Care Implementation Challenges

TIC is an approach broadly accepted to enhance the identification, treatment, and long-term recovery for people who have experienced psychological trauma. It focuses on trauma informed, re-traumatizing prevention, and caring for patients with a compassionate, patient approach. Although there is strong evidence for the effectiveness of trauma-informed care, it continues to be difficult to incorporate trauma-informed care into community and primary care settings. Primary healthcare facilities are a first place of contact for people with symptoms of trauma, and many facilities do not have the resources, programs, or staff to effectively integrate evidence-based trauma interventions. (Substance Abuse and Mental Health Services Administration [SAMHSA], 2023). Many trauma survivors suffer from poor mental health and low quality of life as they are not diagnosed, or are diagnosed and receive only a small part of the care they need.

Lack of trained mental health providers is one of the major challenges to implementation. Specialized clinical training and supervision are needed to deliver trauma-focused therapies such as TF-CBT, EMDR, CPT, and PE. Primary care providers and

community health workers are not trained in trauma assessment and management for the most part, though. This lack of knowledge can result in under-recognition of trauma-related symptoms and/or misdiagnosis as depression, anxiety, or behavioral disorders with failure to identify the trauma-related experiences (APA, 2022). Access to mental health services is still limited, and the workforce is even more scarce in rural and underserved communities.

However, budgetary issues also stand in the way of the successful implementation of TIC.. The shift to trauma-informed services demands staff training, screening tools, interdisciplinary teams, and staff development. Many of the community health centers have constrained financial resources, which make it challenging to hire qualified mental health workers, or offer evidence-based psychological therapy services. Poor insurance policies and reimbursement processes further limit access to trauma-related care, especially for the poor. This can lead to long waiting periods, delayed diagnosis and treatment discontinuation due to financial barriers among others (WHO, 2023).

Ostracism because of mental illness and trauma is another great barrier. Fears of discrimination, social judgment or shame can prevent many people from sharing their traumas. Those who have been sexually harassed, assaulted, abused as a child or by a military partner may be worried about being blamed or misunderstood by a professional. The cultural attitudes toward mental illness may also prevent people from seeking treatment, especially when mental illness is perceived as a personal disease or a sign of personal weakness in the community. Without being culturally competent in the healthcare field, providers can create environments that do not encourage disclosure, which diminishes opportunities for early intervention and recovery (Centers for Disease Control and Prevention [CDC], 2024).

The other challenge is to incorporate trauma informed care into regular primary healthcare practice. Primary care environments often have time constraints and healthcare workers are expected to treat a variety of medical conditions in a short time frame. Time is needed for more in-depth trauma assessments, psychological support and referrals, which are not available during typical appointments. In addition, communication among primary care providers, mental health professionals and community support services is often disjointed, leading to care gaps and diminished effectiveness of care. Many trauma survivors suffer from gaps in services related to assessment, referral, and follow-up without having comprehensive multidisciplinary care pathways.

Successful implementation is also related to organizational readiness. Creating a trauma-informed practice is not just about implementing screening questionnaires and clinical guidelines; it is about changing the way the healthcare system works, and creating physical and emotional safety, trust, collaboration, empowerment and cultural sensitivity across the entire organization. Leaders of many health organizations are not committed to the importance of trauma-informed care, and there are no standardized trauma screening procedures or policies for trauma-informed practice. There is no leadership commitment, staff training programs, standardized trauma screening procedures, or policies for trauma-informed practice for many healthcare organizations. Although there is increased evidence of the clinical benefits of implementing, resistance to change and lack of institutional support often slow implementation (SAMHSA, 2023).

Implementation challenges are increased by access inequalities. People in rural, low-income neighborhoods or in communities experiencing conflict may lack mental health providers, transportation and/or access to trauma providers. These disparities have a disproportionate impact on marginalized communities, such as racial and ethnic minority groups, refugees, Indigenous, military veterans, and children. While healthcare professionals have been able to use telehealth to increase access to psychological health services, there remains a lack of understanding of how to provide these services in an equitable way due to issues with access to the internet, digital literacy, and technological infrastructure.

However, there are some steps that can be taken to enhance TIC in community and primary health care. There is significant potential to enhance access to evidence-based therapies by expanding workforce training, integrating behavioral health services into primary care, boosting funding from the government, enhancing insurance coverage for trauma-informed therapies, and fostering interdisciplinary collaboration. Along with routine trauma screening, culturally responsive care and public education initiatives to combat stigma are also crucial to early identification and intervention. Ongoing research on implementation will also facilitate the identification of cost effective approaches to embedding TIC into a variety of health care systems.

Overall, there is a need for a coordinated approach at the individual, organisation and policy levels for successful implementation of TIC. Meeting shortages of providers and financial barriers, stigma, and fragmented health care delivery as well as inequitable access will help build the capacity of community and primary care to deliver effective, person-centered trauma treatment. These are crucial for improving recovery outcomes, minimizing the long-term impact of trauma on mental health disorders and ensuring equitable mental health services for all communities.

5. Case study: Post-Trauma Recovery Syndrome

Post-trauma recovery syndrome is the way the person experiences ongoing emotional, cognitive, behavioral and physical symptoms after being exposed to a traumatic event and is regaining wellness over time with the right psychological and medical

care. The case study below demonstrates how principles of trauma-informed care are used to address trauma-related symptoms, and underscores the value of early intervention, evidence-based treatment, and multidisciplinary support.

The patient will be referred to as Ms. A is a 32 year old woman who is a nurse in the emergency department who survived a serious road traffic accident and will not be named to protect her anonymity. She suffered slight physical injuries in the accident and while riding in the same vehicle, she saw her colleague die. She recovered physically several weeks later, but started to have ongoing psychological problems around the month of the incident. She originally thought that her symptoms would go away on their own but they gradually worsened and began to affect her life in the places where she was active and performing.

Ms. B came to her main health care provider with complaints of nightmares, intrusive memories of the accident, emotional numbness, irritability, difficulty concentrating, insomnia and extreme anxiety when travelling on road. She also said she avoided speaking of the accident, refused to drive, removed herself from family events and had a lot of guilt about not dying. These symptoms had an impact on her work productivity and resulted in more absences and less confidence in emergency care. Her symptoms matched those described in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5-TR) PTSD, including intrusion symptoms, avoidance, negative alterations in cognition and mood, and increased arousal for more than one month (APA, 2022).

The assessment was conducted by a multi-disciplinary team of psychiatrist, clinical psychologist, primary care physician and psychiatric nurse using a comprehensive trauma-informed assessment. PTSD Checklist for DSM-5 (PCL-5), Patient Health Questionnaire-9 (PHQ-9) and Generalized Anxiety Disorder-7 (GAD-7) questionnaires were used to assess symptom levels and to document any concurrent depression or anxiety symptoms. The evaluation identified moderate symptoms of PTSD and mild depression, but no signs or symptoms of psychosis or substance abuse. Importantly, the clinical team was trauma-informed and took measures to ensure emotional safety, informed consent prior to discussing traumatic memories, and giving the patient control over the pace of assessment. This way, there was less risk of re-traumatization and more therapeutic trust.

The multidisciplinary team designed an individual treatment plan based on the existing clinical guidelines, focusing on psychological therapy as the first-line treatment. Ms. 12 weekly sessions of Trauma-Focused Cognitive Behavioral Therapy (TF-CBT) commenced. Psychoeducation about trauma responses, relaxation, emotional regulation, cognitive restructuring, and slow processing of trauma memories; therapy. She has learned to recognize that her thinking is maladaptive, especially self-blame for the death of her colleague, and to change her thinking to more realistic interpretations. The controlled breathing exercises, mindful breathing and stress management techniques were also taught to help regulate the emotions during distress.

Eye Movement Desensitization and Reprocessing (EMDR) has been added to her therapeutic plan due to the persistence of intrusive memories and anxiety after the first treatment. The patient underwent EMDR sessions, which helped him to work through the distressing memories and decrease their emotional impact. She reported: fewer nightmares in the first, fewer physiological responses to travel, and more confidence regarding the accident without feeling overwhelmed, over a period of several weeks. TF-CBT and EMDR were part of the combination of trauma-focused psychotherapies, which was supported by current evidence as effective treatments for PTSD and trauma-related disorders (WHO, 2023).

Supportive interventions were put in place to facilitate a comprehensive healing process, in addition to psychological therapy. The patient joined a peer support group for healthcare workers who had encountered traumatic events, where she could share her experiences and feel supported and safe. Family members were psychoeducated about PTSD to better understand her

symptoms and promote supportive communication within the family. Her employer also had a gradual return to work programme and made temporary adjustments to her work to minimise the stress at work when recovering.

Significant clinical improvement was noted after about four months of treatment. The results of repeated psychological assessments showed that there were considerable decreases in PTSD, anxiety, and depression. Ms. A reported improvement in sleep quality, a reduction in intrusive memories, better emotional control and a regaining of confidence in driving short distances. She was able to return to full-time work and to re-join family and social life. Sometimes she had bad memories, but not much of an impact on her life. Follow-up appointments were scheduled regularly to check for recovery and to practice coping skills.

This case illustrates the importance of timely diagnosis, evidence-based psychological treatments, multidisciplinary collaboration and good social support in the recovery from trauma. It also shows how key elements of TIC such as safety, trust, collaboration, empowerment, and individualized treatment planning—can be put into practice. Symptoms of trauma may be identified early and more effectively in primary care, leading to timely referral for specialized mental health treatment to avoid the development of chronic PTSD and long-term functional impairment. The case also highlights that trauma recovery does not only involve symptoms but the restoration of the emotional state, cognitive functioning, interpersonal functioning, and overall quality of life.

The need to incorporate trauma-informed care into the delivery of routine healthcare is therefore vital for maximizing health outcomes over time for those who have experienced trauma.

6. Findings

The results of this review support the conclusion that psychological trauma can have a complex and interconnected array of affective and cognitive sequelae mediated by neurobiological, psychological and social pathways. Trauma impairs the function of the hypothalamic-pituitary-adrenal (HPA) axis, leading to dysfunction in cortisol regulation which can produce anxiety, depression, emotional dysregulation and abnormal stress responses. Additionally, neuroimaging research shows that trauma impacts the function of three parts of the brain: the amygdala, the hippocampus, and the prefrontal cortex, causing hypervigilance, intrusive memories, impaired executive functioning, and emotional regulation problems (APA, 2022). These biological changes are linked to the maladaptive cognitive processes of fear conditioning, avoidance, self-blame, and negative beliefs, all of which can lead to the development of PTSD and other trauma-related mental health disorders.

The review also revealed that trauma-focused psychotherapies continue to be the most effective evidence-based treatments for fostering post-trauma recovery. Parents, children and adolescents showed especially promising results in the treatment of PTSD, anxiety, depression, behavioural problems, increased coping skills and family support; Trauma-Focused Cognitive Behavioral Therapy (TF-CBT) proved itself to be effective. Likewise, Eye Movement Desensitization and Reprocessing (EMDR) treatment resulted in significant reductions in trauma processing and emotional regulation for both children and adults. Other treatments such as Cognitive Processing Therapy (CPT) and Prolonged Exposure Therapy (PE) were also demonstrated to help decrease trauma-related symptoms by changing maladaptive beliefs and avoidance patterns. Overall, the available evidence suggests that therapies are equally effective for the long-term treatment of this condition, though the choice of therapy should be based on patient variables, symptom presentation and therapist skills (WHO, 2023).

Lastly, the study points to important challenges in providing trauma-informed services in community and primary care. Workforce shortage and under-resourcing, lack of trained mental health providers, stigma associated with trauma, lack of integration, inequities to rural and marginalised populations remain barriers to access to evidence-based services. The case study also illustrated the importance of early identification, the importance of a multidisciplinary approach to treatment, trauma-informed assessment and individualized treatment planning for successful recovery. The results reflect the importance of increased policy support, increased training for service providers, integration of behavioral health services, and continued investment in trauma-informed care, to enhance outcomes of trauma recovery and to lessen the chronic effects of trauma-related disorders.

7. Recommendations

Findings from this review illustrate that there is a need for a coordinated response from governments, healthcare, researchers and community organizations for improved recovery after trauma. TIC should be informed by trauma and include the biological, psychological and social effects of trauma and make sure that evidence-based trauma interventions are available equally. Below are some recommendations for policy development, healthcare interventions and further research priorities.

7.1 United States Government Interventions and Policies

The U.S. government should further build national TIC policies through a greater emphasis on available, comprehensive mental health care in community and primary health care. More federal funding needs to be provided for trauma screening, early intervention, and evidence-based psychological treatments like Trauma-Focused Cognitive Behavioral Therapy (TF-CBT), Eye Movement Desensitization and Reprocessing (EMDR), Cognitive Processing Therapy (CPT), and Prolonged Exposure Therapy (PE). Healthcare facilities could hire and retain mental health workers by providing sustainable funding and increase accessibility of services for vulnerable populations (SAMHSA 2023).

The government should also encourage mandatory trauma-informed education for all healthcare providers, teachers, social workers, fire and emergency responders, and police officers. This training would enhance awareness of trauma-related symptoms, minimize the risk of re-traumatizing, and increase multidisciplinary collaboration. In addition, trauma survivors should have policies that encourage the integration of behavioral health services within primary care settings to help facilitate timely assessment, treatment and referral in a coordinated healthcare system.

Another key policy priority is to expand telehealth infrastructure. Telepsychiatry and virtual psychological services can be especially beneficial for those in rural and underserved areas that do not have access to specialist services in trauma-focused care. In addition, public awareness initiatives need to be conducted to minimize the stigma associated with trauma and mental health issues, promote early engagement with help-seeking and educate the community about TIC

7.2 Health and Medical Interventions

All healthcare providers should implement routine trauma screening as part of routine clinical practice, especially in primary care, emergency departments, maternal health, pediatrics, and mental health settings. Early identification of trauma exposure will enable healthcare workers to respond promptly before symptoms become chronic. Screening should be done using assessment tools that have been validated and in a safe, confidential, and culturally sensitive setting (APA, 2022).

Trauma focused psychotherapies that are evidence-based should be the first line of treatment for anyone diagnosed with PTSD and related disorders. TF-CBT may be especially suitable for children and adolescents, while EMDR, CPT and PE should be readily available for adults based on clinical presentation and patient preference. Treatment plans are individualized, and should involve a multidisciplinary team including psychiatrists, psychologists, primary care physicians, psychiatric nurses, and social workers.

Complementary interventions are also recommended that support the comprehensive recovery of patients such as psychoeducation, family therapy, peer support groups, stress management, mindfulness-based interventions, and relapse prevention programs. These services help with emotional regulation, build resilience, and positively impact recovery outcomes over time. Routine follow-up should be conducted to track treatment outcomes, risk of relapse and the need to modify interventions as needed.

Healthcare organizations should also foster a culture of care through patient safety, trust, collaboration, cultural competency, and employee wellness. Regular supervision and psychological support for HCWs is important as exposure to traumatic situations repeatedly may lead to a higher risk of HCW burnout and secondary traumatic stress.

7.4 Academic Research – Solutions & Future Directions

Further research is needed to enhance the evidence base of TIC to various populations and health care settings. Future research should use longitudinal designs to determine effectiveness of trauma-focused therapies beyond the immediate post-treatment period and types of factors related to sustained recovery. The comparative effectiveness of TF-CBT with EMDR, CPT and PE across age groups, culture and trauma type should be examined.

Other studies will be needed to explore novel methods of trauma treatment, like digital mental health platforms, telepsychology, mobile health applications, virtual reality trauma treatment, and artificial intelligence-based screening tools. Overall, these technologies could improve access to care and lower treatment costs, especially in areas where care is underutilized. But their efficacy, their acceptability and ethical considerations must be carefully assessed.

Further implementation science research is also required to investigate how to implement TIC in primary healthcare systems, schools, correctional systems as well as community organizations. There is a need to pay greater attention to the cases of low resource settings, minority populations, refugees, military veterans and persons who have suffered complex trauma, who are

currently under-studied. By addressing these gaps in knowledge, a more culturally responsive and equitable approach to trauma services can be built and policies and practices informed for the future.

8. Conclusion

Psychological trauma is still a serious public health problem that affects people, families and health care systems globally. This review has illustrated that trauma exposure is associated with emotional regulation, cognitive functioning and overall well-being, and that trauma exposure has complex neurobiological, psychological and social mechanisms. All of these factors may interact to cause and maintain PTSD, anxiety disorders, depression, and other trauma response disorders. The results emphasize the importance of "whole person" trauma-informed systems/approaches that acknowledge the complex way trauma affects human functioning.

The review also points to trauma-informed psychotherapies as the most effective suicide prevention treatments for advancing PT recovery. TF-CBT, EMDR, CPT, and Prolonged Exposure Therapy (PE) have consistently shown large reductions in symptoms of PTSD, better emotional control, and normal cognitive functioning. While the treatment strategies differ across therapies, at present evidence suggests that all four therapies are effective in inducing clinically significant and sustained change when provided by adequately trained clinicians. Therefore, the choice of treatment needs to be tailored to the individual's clinical presentation, age, cultural context, and the resources of the health care system.

Nevertheless, there are many challenges in implementing trauma-informed care in community and primary care settings. The lack of funding, fragmented health care systems, stigma associated with mental illness and workforce shortages and the disproportionate impact on rural and underserved populations limits the availability of evidence-based trauma services. These observations are supported by the case study presented in this review, which shows the importance of early identification, multidisciplinary teamwork, individual treatment planning, and continued social and emotional support in the recovery process

from trauma. These results highlight the need to go beyond symptom management in trauma care and emphasize its importance in supporting resilience, empowerment, and long-term functional recovery.

It's important to recognize that trauma is an ever-increasing crisis and it demands the continued efforts of governments, health services, researchers, and communities. Improving policy and practice to make services more trauma-informed, providing increased access to evidence-based psychological therapies, investing in behavioral health workforce development, and integrating behavioral health into primary care will help to optimize recovery outcomes and minimize the impact of trauma over time. In addition, further research is required to assess new treatment strategies and update current implementation methods, and to fill gaps in knowledge on various populations. Trauma-informed care can play a major role in helping to promote positive mental health and an improved quality of life for people who have been impacted by trauma through coordinated policy, clinical, and research initiatives.

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