



# Treatment approaches for traumatized youth in low- and middle-income countries

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## ABSTRACT

Trauma exposure in childhood is disproportionately high in low-and-middle-income countries (LMICs), exacerbating mental health disorders like post-traumatic stress disorder (PTSD) and depression. However, research into effective treatments has been limited, and access to quality mental healthcare is often scarce. This paper reviews interventions for PTSD and related conditions in youth living in LMICs. Prevalence data indicate high rates of trauma exposure (80-90% in some studies) and PTSD (up to 87%) among children and adolescents in LMIC conflict zones. Classroom and group-based cognitive-behavioral approaches show promise, with medium effect sizes overall, though results vary across studies. For example, Teaching Recovery Techniques (TRT), a trauma-focused Cognitive Behavioral Therapy (CBT), and Narrative Exposure Therapy (NET), which facilitates trauma narrative reconstruction, demonstrate small-to-medium effects on reducing symptoms. However, many studies lack controlled research to confirm results. Additionally, PTSD interventions designed for high-income settings are often unavailable in LMICs. Scalable, culturally adapted treatments are needed. Stigma also limits mental healthcare utilization, though anti-stigma campaigns can increase help-seeking. In sum, childhood trauma burden is extremely high in LMICs, but data on evidence-based interventions is limited. More research into accessible, cost-effective treatments tailored to LMIC youth is critically needed.

**Keywords:** Psychological Trauma (MeSH); Trauma and Stressor Related Disorders (MeSH); Stress Disorders, Traumatic (MeSH); Developing Countries (MeSH); Youth (Non-MeSH); Adolescent (MeSH); Children (MeSH); Therapeutics (MeSH); Conservative Treatment (MeSH); Stress Disorders, Post-Traumatic (MeSH); Psychotherapy (MeSH); Behavior Therapy (MeSH).

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care health services. Research efforts in this domain have additionally been difficult to design and execute. The result is a scarcity of information on treatment impact for youth from LMICs with trauma-related illnesses; information that is critical for future mental health service planning. This paper reviews the published data on the prevalence and treatment of PTSD and depression in youth in LMICs with a view towards designing effective interventions to lessen the burden of trauma-related illness in these communities.

**The scope of the problem:** LMICs suffer disproportionately, from a population-health perspective, relative to countries and communities with higher SES's. This includes mental health. Rates of common mental health disorders are high in LMICs, especially amongst children and adolescents. This is in part due to the barriers to obtaining routine mental health care that individuals in these countries face, including a systematic bias towards obtaining help for emotional difficulties.<sup>1</sup> Additionally, youth in these communities experience disproportionate levels of trauma. Data from various regions and LMICs including the Gaza Strip, Zambia, Sub-Saharan Africa, Uzbekistan and India-regions marked by high population

## INTRODUCTION

Most of the world's population resides within countries defined as low-and-middle-income (LMICs) and marked by widespread poverty. Socioeconomic status (SES) has repeatedly been shown to be inversely related to childhood exposure to trauma, with children in LMICs experiencing significantly greater adversity in childhood than youth from more prosperous countries and communities. Within LMICs, the population is additionally characterized by a high proportion of persons under the age of 18, due in part to factors including the limited availability and acceptance of birth control as well as lower life expectancy. The source of childhood trauma in LMICs is multiple

and varied, and includes exposure to armed conflict, domestic and gender-based violence, famine and natural disaster. These exposures are known to have a cumulative impact on the mental health and wellness of children within these communities leading to an increased frequency of psychiatric illness including depression and post-traumatic stress disorder (PTSD).

Compounding the increased prevalence of adversity for young people growing up in LMICs, is a shortage of trained mental health personnel within these countries. Even where trained personnel do exist, traditional models of healthcare practice and delivery aren't often available to populations characterized by low access to, and utilization of, conventional point-of-

density, with rapid population growth, show that political tension and outbreaks of violence, among other factors, often put the citizens in these communities at greater risk for early exposure to traumatic experiences.

A child growing up in a community marked by war and violence, particularly where there is insufficient access to professional guidance or support, is at significant risk for developing mental health symptoms. Studies on LMICs indicate that low SES has a significant impact on the prevalence of PTSD and that this is mediated by the cumulative effects of adverse experiences and trauma experienced by individuals in these populations. Yatham S, et al., pointed out that LMICs not only have the largest percentage of the world's population but also a significantly younger population relative to more developed, higher SES countries. In these regions, the combination of high population density, limited resources, and poor infrastructure contributes to the level of poverty which is positively correlated with the likelihood of exposure to a wide array of traumatizing events in childhood.<sup>2</sup>

Poverty and high levels of exposure to trauma are a dangerous mix. Data show that most children and young adults living in LMICs experienced personal trauma (88.4%), witnessed trauma to others (83.7%), and observed demolition of property (88.3%) during periods of heightened domestic and foreign conflicts. Further, children and young adults who have experienced these events were significantly more likely to be diagnosed with PTSD compared to those who had not. Yatham showed that up to 87% of youth in the LMICs met criteria for PTSD.<sup>2</sup> All the youth within these communities assessed for psychiatric disorders presented with previous exposure to traumatic experiences and a comparison of individual studies reveals relatively uniform prevalence rates of PTSD across youth in these communities.<sup>2</sup>

Of added concern is the data regarding suicide rates which indicates that lower SES, trauma exposure and a diagnosis of PTSD, all serve as mediating factors for

later suicidal behavior. According to a recent meta-analysis of worldwide suicide rates in adolescents, the rate was higher among older, compared with younger, adolescents and the rates were higher among males than females in LMICs.<sup>3</sup> This finding coincides with the data from the review by Yatham S, et al., which notes older adolescents filling caregiving roles due to the low-life expectancy in LMICs.<sup>2</sup> The increased burden of responsibility in adolescence in these countries, especially the need to care for younger siblings after the loss of a parent, significantly impacts the mental health of older adolescents.

Although existing literature provides evidence for the heightened trauma experienced amongst youth in LMICs, and the impact of this exposure on the development of PTSD, the scope of the problem goes beyond obtaining an initial diagnosis of PTSD. Compounding the problem, these youth often lack adult support, financial resources, mental health resources, and guidance as to how to access health care in general.

**Treatment approaches:** A variety of specialized interventions for traumatized children and adolescents in LMICs have been evaluated to address the symptoms of PTSD, depression, and anxiety. Yatham's systematic review of mental health interventions used in settings of trauma related to armed conflict, found over ten different types of treatment approaches utilized to ameliorate PTSD within these communities.<sup>2</sup> Two studies, employed Teaching Recovery Techniques (TRT), a trauma-focused group CBT intervention designed for use in schools.<sup>4,5</sup> Four studies, used a Classroom-Based Intervention (CBI) that implemented CBT techniques and expressive exercises through art, physical movement, and speaking.<sup>6-9</sup> The review found significant symptomatic improvement after following many of these community-based interventions, leading to their conclusion that community-based programs can be effective in the reduction of PTSD symptoms.<sup>2</sup> Although CBIs for PTSD have been found to be generally effective, the specific results for different CBI approaches are varied. A randomized controlled trial conducted on 329

children and adolescents in Burundi did not find significant group differences in PTSD outcomes between their CBI program and control group.<sup>6</sup> One CBI randomized controlled trial, including CBT techniques and stress inoculation training, tested on 209 children and adolescents in Lebanon also did not find significant group differences on pre-war, 4-weeks post-war, or 1-year post-war rates of PTSD.<sup>7</sup> Another classroom-based randomized controlled trial involving CBT techniques and creative expression conducted on 325 children in Nepal also did not find significant group differences in symptoms of PTSD.<sup>8</sup> On the other hand, a randomized controlled trial CBI conducted with 495 children in Indonesia did find significant improvement in PTSD symptoms in girls.<sup>9</sup> A longitudinal pretest-posttest study using a stratified random sample in the Gaza Strip also found that after a school-based counseling program, the prevalence of PTSD and symptoms of PTSD and emotional, somatic, and cognitive functional impairment all decreased from 57.5% to 45.6%.<sup>10</sup>

One of the currently confounding variables in determining the efficacy of CBIs in LMICs is the number of varied approaches that are grouped together and studied under this label. When looking at specific classroom-based designs, some of the strongest supporting evidence comes from Qouta SR, et al., who conducted an RCT on 482 children in Palestine using the TRT model and found significant improvements in symptoms of peritraumatic dissociation in the group receiving a TRT intervention compared to the control group.<sup>4</sup> Barron G, et al., also studied the effects of TRT on 133 children in Palestine and found significant decreases in symptoms of PTSD and traumatic grief.<sup>5</sup> In another meta-analysis focused on the treatment of PTSD in LMICs,<sup>1</sup> Uppendahl JR, et al., pointed out that the number of available studies, specifically RCTs, on psychological and psychosocial interventions for PTSD, depression, and anxiety in adolescents in LMICs was low, especially in light of the fact that LMICs make up more than half of the world population and adolescents make up almost half of that population. In their

review, the researchers looked at a variety of interventions for PTSD, including one individual trauma-focused CBT (TF-CBT) study, several school-based interventions that incorporated CBT techniques and creative expression, and several group programs. The group programs were both school-based and specialized mental health interventions and included TRT, CBT crisis interventions, mind-body skills group, and spiritual hypnosis. The researchers concluded that collectively these interventions produced significant outcomes with a medium effect size (Hedge's  $g$ ) and some heterogeneity. Specifically, the TRT approach had a small to medium effect size, the mind-body skills group had a large effect size, and the crisis intervention and non-TRT school-based interventions had very small effect sizes. Across all the studies, the data is not compelling for any single approach and nor does the data look at long-term outcomes. With this caution in mind, study authors looking at the benefits of group and school-based interventions for youth in LMICs conclude that many of the community-based interventions that have been tried to date are both feasible and effective. In order to better confirm the results of these initial studies, however, more controlled research needs to be conducted on intervention programs that appear promising in terms of both accessibility and impact.

It is also important to consider interventions in these LMIC populations that may have not yet been tested using an RCT design. While an RCT design allows information to be gained about the benefits of a specific intervention compared to an untreated population, there are many instances in which the immediate importance of developing greater access to potentially beneficial PTSD treatments does not allow for the use of an experimental design in which half the participants would not have access to a treatment intervention which might potentially help them heal from PTSD. Additionally, according to Raghuraman S, et al., RCTs of short-term interventions face many limitations such as an inability to address interacting problems or comorbidities.

They may also not comprehensively consider many important aspects of psychotherapy and psychosocial well-being, including socioeconomic, political and cultural contexts that may have significant effects.<sup>11</sup>

Narrative Exposure Therapy (NET) is such an approach, one which has not yet been tested within an RCT design. It was originally developed to treat refugee populations and has since been tested for efficacy across different settings. The goal of NET is to have a person reconstruct a chronological narrative of their life to help contextualize traumatic events. This approach shows promise for the treatment of PTSD in LMIC settings.<sup>11-13</sup> In a meta-analysis reviewing twenty-four studies on NET, Raghuraman S, et al., observed medium effect sizes for PTSD symptom severity reduction at both the midterm and long-term analysis points in the groups receiving the treatment and reductions in symptom severity for depression at the midterm assessment. They also observed a significant decrease in the number of PTSD diagnoses (i.e., a participant no longer qualifying for PTSD) in the short-term treatment group but this remission of PTSD, however, was not found to be maintained at long-term data collection points.<sup>11</sup> In order to understand the reduction in severity of PTSD in the long-term without the decrease in PTSD diagnosis, there are various considerations including the possibility that that only partial remission occurred.

In a study by Kaltenbach E, et al., the benefits of NET were assessed in a sample of refugees in Germany. PTSD symptom trajectories were monitored throughout for participants receiving NET. The treatment consisted of psychoeducation on PTSD and NET, creating a "lifeline", and then constructing a detailed narration of the participant's life. Participants showed a reduction in PTSD symptoms at different times throughout the intervention. Overall, half of the participants showed a decrease in symptoms during and after the treatment.<sup>13</sup>

In spite of the promising results for both

classroom and group-based CBT approached as well as NET, there is not as yet a single best approach to PTSD treatment in part because, despite best efforts, research into the nature of trauma in LMICs remains scant and sufficient resources are not available to comprehensively evaluate the different, and context-dependent approaches which to date have shown promise. Further, it would be naive to think that all PTSD in all LMICs is the same, or that it would respond analogously to a singular treatment intervention.

## DISCUSSION

Trauma has been historically underrecognized, and as such under-researched and undertreated, in LICs around the world. To compound this problem, governments from LMICs spend the lowest percentages on mental health worldwide,<sup>14</sup> and research additionally shows that in LMICs, people with mental health concerns are highly stigmatized and prefer not to disclose their problems or symptoms to health professionals and will often not even do so to their own relatives.<sup>15</sup>

Research shows that successful psychological treatments for PTSD typically involve an element of exposure to traumatic memories. This is consistent with the theory that PTSD is a memory disorder requiring an intervention that results in a permanent change in the brain networks that encode trauma memories. In the developed world, standard treatments include Trauma Focused Cognitive Behavioral Therapy (TF-CBT), Eye Movement Desensitization and Reprocessing (EMDR) and Prolonged Exposure for PTSD. However, these treatments, ones that are readily available in high-income communities, are often less, or completely not, available in LICs where PTSD can be severe and complex, often results from multiple and enduring traumatic experiences throughout childhood and adolescence.

And so how is a traumatized person from LIMC to receive effective treatment when there is little research into the nature and expression of the trauma, when the mental health

services are underfunded and when the expression of mental health concerns is highly stigmatized?

Governments providing significant economic resources for mental health training and services in cash-strapped countries is unlikely to happen quickly. Two ways in which there could be an almost immediate impact, and that are relatively inexpensive are,<sup>14</sup> national stigma awareness campaigns which have been shown to lead to greater comfort in people disclosing a mental health problem and greater willingness to ask for help,<sup>15,16</sup> and therapies such as Narrative Exposure Therapy (NET) and select, classroom-based and group-based CBT treatments which have been specifically developed for use in low income communities for trauma resulting from organized political violence, war, and the impact of social and environmental forces. One of the significant benefits of interventions such as NET is that non-specialist counselors can be trained to deliver the therapy within a short period of time, not requiring the demands, rigors and costs typically associated with Western education. The exposure is addressed in that an individual share the chronology of their life including the trauma, but this approach also includes incorporating some positive events into the developed narrative. The theory is that this approach contextualizes the network of cognitive, affective and sensory memories of a patient's trauma, making potential impact greater.

Having a two pronged approach, one that in the shorter-term provides a destigmatization of mental illness while also providing those who struggle with some experience of the benefit of sharing their struggles, then allows in the longer-term for the more aspirational hope of the gathering of more robust data, the training of clinicians in evidence based approaches, the increased funding of mental health services, and the more effective treatment of a segment of the population that to this day remains neglected.

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#### AUTHORS' CONTRIBUTION

The following authors have made substantial contributions to the manuscript as under:

**CK, BA:** Conception and study design, drafting the manuscript, critical review, approval of the final version to be published

**KVK, EC & LS:** Acquisition, analysis and interpretation of data, drafting the manuscript, approval of the final version to be published

*Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.*

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The data that support the findings of this study are available from the corresponding author upon reasonable request.



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