



## EDITORIAL

## Are adverse childhood experiences the hidden iceberg of emotional distress in children and adolescents?



### Experiencias adversas en la infancia (EAI): ¿la base del iceberg del sufrimiento emocional de la población infantil y adolescente?

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Adverse childhood experiences (ACEs) are defined as harmful, chronic or recurrent experiences that occur during childhood up to age of 18 years, especially in the first 6 years.

The first study on ACEs was conducted by Felitti et al. in 1998. Its findings suggested that health problems in adulthood have their origin in childhood, as the authors observed that the risk of developing chronic diseases in adulthood increased with the overall number of ACEs experienced during childhood, reporting a decrease in life expectancy of up to 20 years in some adults.<sup>1</sup>

Adverse childhood experiences are a source of stress for children and adolescents. The activation of the stress response system allows the organism to adapt and survive in adverse circumstances, but its chronic activation triggers a neurohormonal response and the release of neurotransmitters and toxic mediators, mainly cortisol, causing damage to multiple organs that may be irreparable and to a progressive wear and tear or overload of physiological systems, a phenomenon known as 'allostatic load'. This response, called 'toxic stress', is the underlying pathophysiological mechanism involved in the development of diseases with

high morbidity and mortality, risk behaviours and self-injury, social problems and early death.<sup>2,3</sup> Adverse childhood experiences, toxic stress and allostatic load were introduced in the Nelson Textbook of Pediatrics, 21st Edition (2020) as health problems in children and adolescents (Fig. 1).

The early publications on the subject limited the definition of ACEs to situations of maltreatment or abuse; however, it has since become known that there is a broad spectrum of adversity ranging from events that threaten the integrity of the child (physical or sexual abuse, bullying, exposure to different types of violence, natural disasters or war) to chronic and continuous poor living conditions (exposure to parental mental illness, racism, poverty, neglect, separation in the family, parental conflict, exposure to environmental toxins, pollution, constant anxiety due to the global pandemic, social rejection or isolation). These new categories are highly relevant in explaining emerging health problems in children and adolescents (Table 1).

Special consideration should be given to 'early adversity' (first 2–3 years of life) and its impact on neurodevelopment. The presence of toxic stressors during critical or sensitive periods of neurodevelopment can lead to a reduction or loss of brain functions that may be permanent; emotion regulation, in particular, has a short sensitive period, so that any disturbance during this period will result in adults with lifelong difficulties in emotion regulation. In addition, exposure to different environmental factors or toxic stressors dur-

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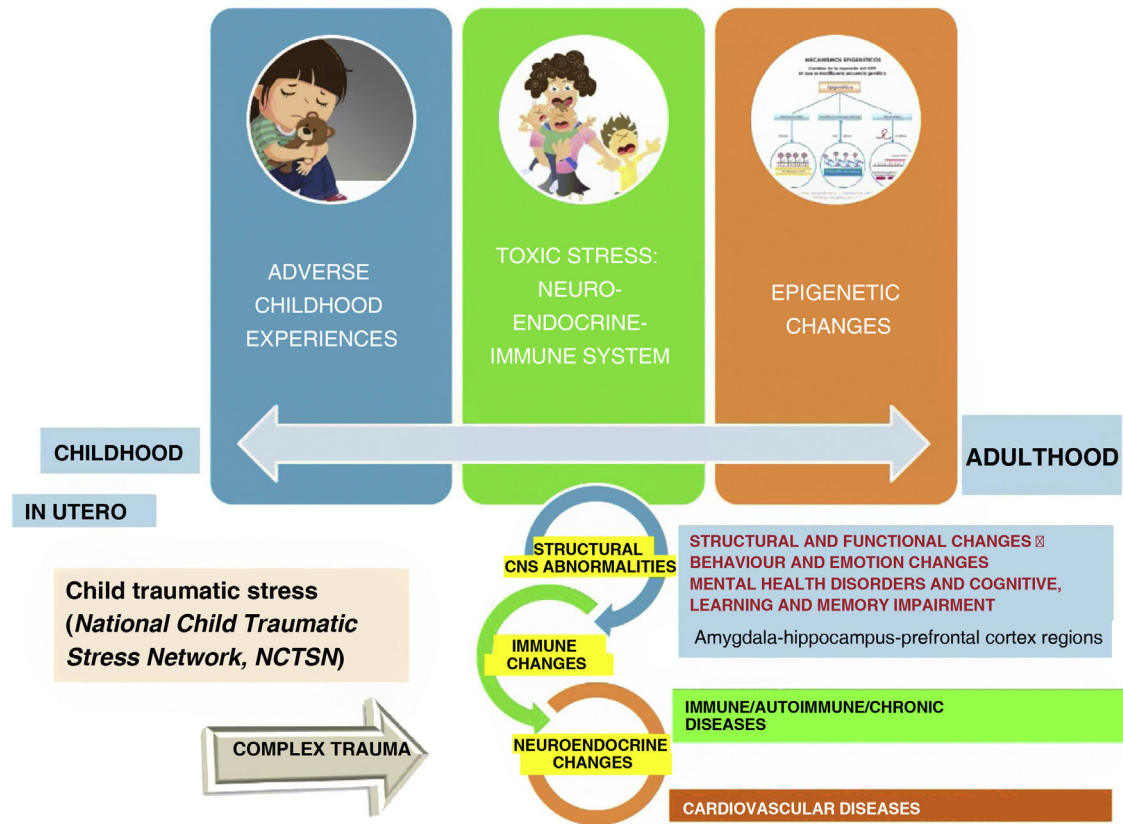


Figure 1 Impact of adverse childhood experiences through the lifespan.

**Table 1** Classification of adverse childhood experiences.

Abuse and neglect	Emotional abuse
	Emotional neglect
	Physical neglect
	Physical abuse
	Sexual violence
Household dysfunction	Intimate partner violence
	Substance abuse
	Mental illness in caregivers
	Complex divorce
	Incarceration of a parent
	Parental conflict
Social adversity	Death of a parent
	Witnessing violence in the community
	Unsafe neighbourhood
	Lack of neighbourhood connectedness/trust
	Discrimination due to race, religion, culture, gender or sexual orientation
Other	Social exclusion, substandard housing
	Bullying
	School problems
	Institutionalization in child protection/foster care system
	Social isolation
	Poverty/Low socioeconomic level
	Lack of social skills
	Natural disasters
	War
	Global pandemic

ing childhood has cumulative detrimental effects that lead to changes in DNA reading patterns and epigenetic marks, which promotes the transmission to future generations of maladaptive responses, attitudes and coping strategies in relation to life and health.

There is evidence that exposure to any form of ACE increases the risk of attempted suicide by a factor of 2 to 5 and that the association between youth adversity and health outcomes is strongest when peer victimisation, community violence or school problems are considered as indicators of adversity.

The article by González et al.<sup>4</sup> published in the current issue of ANALES DE PEDIATRÍA highlights the impact of ACEs on mental health and suicidal behaviour in the paediatric population, but this association is not found in every study, probably because research on this subject is based on a narrow definition of adversity.

Different publications report an increase in suicide among children and have alerted the international community to the relevance of suicidal behaviour in the paediatric population; in fact, suicide is currently the fourth leading cause of death in the 15–29 year-old age group worldwide.

The study conducted by the ANAR Foundation on suicidal behaviour and mental health in children and adolescents between 2012 and 2022 confirmed that in this period the number of cases treated for suicidal ideation and suicide attempt increased by a factor of 23.7 and 25.9, respectively, with a particularly marked increase in the period following

the COVID-19 pandemic of 146.8% in suicidal ideation and 207.1% in suicide attempts.<sup>5</sup>

What drives children and adolescents to suicidal ideation or behaviour? There is much discussion about the multifactorial nature of suicidality, the cause of which involves the interaction of genetic, developmental, neurobiological, personal and social factors, but it is environmental factors that seem to be most strongly associated with suicide.

The ANAR Foundation study offers an exhaustive analysis of the problems associated with suicidal behaviour based on the direct self-report of children and adolescents. Based on this survey, the problems associated most frequently with suicidal behaviour are violence against children and adolescents (60.9%) and mental health problems (27.4%), with an increasing trend in the latter since the global pandemic.

As regards the experience of violence most frequently associated with suicidal behaviour in children or adolescents, the literature highlights difficulties in the school setting (bullying, cyberbullying), physical and psychological abuse, sexual violence and gender-based violence in the close environment.

Regarding mental health, the ANAR Foundation study highlighted 3 major problems associated with suicidal behaviour: self-harm (13.7%), psychological problems (8.7%), such as sadness/depression, anxiety or eating disorders, and behavioural problems (4.4%). But what lies beneath the sadness, anxiety or depression of a child or adolescent? Could it be that certain experiences and cumulative emotional suffering can promote the development of emotion regulation problems and the risk behaviours that lead to additional psychological disorders? Today, there is evidence that this happens to be the case.

Other factors associated with suicidal behaviour and other mental health problems include substance abuse and, especially, the inappropriate use of and access to information and communication technologies, promoted by a lack of parental control, which, in turn, can cause social isolation.<sup>5</sup>

There is no question that ACEs are underlying determinants of major public health problems and there is evidence of their impact on 4 of the most important risk factors for health (alcohol use, drug use, smoking and obesity) and 6 main causes of poor health (anxiety, depression, diabetes, cancer, cardiovascular disease and respiratory disease).<sup>1</sup>

Knowledge allows detection and action. If we focus on ACEs and their consequences, we must also pave the way for hope: what can we do? The financial costs associated with ACEs and the positive impact, in terms of health and economics, of strategies that address ACEs have been brought up. We know that healthy, safe and nurturing relationships and sensitive caregiving of children by parents can modulate and even counteract the toxic stress response. The importance of these relationships has prompted the discussion of adverse attachment experiences (Sierra, in press) as a root cause of neurodevelopmental problems.<sup>1,2</sup>

In conclusion, ACEs are a preventable risk factor that requires a response from the health care system from 2 complementary *intervention frameworks*: the *toxic stress framework*, which addresses the health problems deriving from adversity, and the *relational health framework*, which defines the solution. This implies a paradigm shift in paediatric care towards an 'eco-bio-developmental' and trauma-informed model, in which all institutions, pol-

icy makers, professionals and communities combine their efforts to guarantee a safe childhood. Adult health depends on it.<sup>1,2</sup>

## References

1. Felitti VJ, Anda RF, Nordenberg D, Williamson DF, Spitz AM, Edwards V, et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. *Am J Prev Med.* 1998;14:245–58, [http://dx.doi.org/10.1016/S0749-3797\(98\)00017-8](http://dx.doi.org/10.1016/S0749-3797(98)00017-8).
2. Tackling Adverse Childhood Experiences (ACEs) State of the Art and Options for Action. [Accessed 3 September 2024]. Available from: <https://www.ljmu.ac.uk/-/media/phi-reports/pdf/2023-01-state-of-the-art-report-eng.pdf>.
3. Duffee J, Szilagyi M, Forkey H, Kelly ET. Council on community pediatrics, council on foster care, adoption, and kinship care, council on child abuse and neglect, committee on psychosocial aspects of child and family health. Trauma-Informed Care in Child Health Systems *Pediatr.* 2021;148:e2021052579, <http://dx.doi.org/10.1542/peds.2021-052579>. PMID: 34312294.
4. González CD, Martínez-Cárdenas CF. Factores de riesgo y perfiles del reintento suicida en niños menores de 12 años. *An Esp Pediatr (Barc).* 2024;101:310–8, <http://dx.doi.org/10.1016/j.anpedi.2024.07.014>.
5. Ballesteros B (coord.) [Accessed 18 August 2024]. Available from: <https://www.anar.org/wp-content/uploads/2022/12/Estudio-sobre-Conducta-Suicida-en-la-Infancia-y-la-Adolescencia-2012-2022.pdf>, 2022.