Activity 1. of project "SUSTACE" (Training Schoolteachers to Sustain Students with Adverse Childhood Experiences) 2023-1-CZ01-KA210-SCH-000152596

Research Report – Adverse Childhood Experiences

Authors: Doležalová Pavla, Campanino Mario, Heumann Viktor, Eisenreich Wolfgang (2024)

Abstract: Exposure to adverse childhood experiences (ACEs) is a disturbing public health issue affecting cognitive, affective, relational, and behavioral development. In the last 20 years, it has been shown that approximately two-thirds of children will experience at least one form of ACE before the age of 18. These experiences include a wide range of negative events, from abuse and neglect to complex family situations. Research confirms the relationship between ACEs and neurodevelopmental and behavioral disorders, highlighting the importance of prevention, support in the school environment, and a broader community approach to supporting vulnerable children.

Key words: ACE, abuse, neglect, mental health, prevention, school environment, community support

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Introduction

Exposure to adverse childhood experiences (ACEs) is a concerning public health issue. Approximately two-thirds of all children will experience at least one form of adverse experience before the age of 18[1]. In the last 20 years, it has been widely recognized that exposure to traumatic events in childhood affects cognitive, affective, relational, and behavioral development. These traumatic experiences have been categorized as exposure to abuse and/or neglect, household problems or dysfunctions, including a range of chronic stressors, such as parental absence, mental illness in the family, and parental incarceration, as well as other serious stressors like poverty and community violence[2].

Adverse Childhood Experiences (ACE) encompass a broader set of negative events that occurred in a child's formative life into adulthood. Adverse experiences or situations can have lasting effects on physical health and mental well-being in adulthood. The concept of childhood adverse experiences corresponds to the syndrome of the abused and neglected child (CAN syndrome). The ACE concept is broader and includes a spectrum of negative life experiences and events that can adversely affect a child's emotional, social, or physical development. Adverse experiences may include various traumas and forms of negative stress, including minority stress, bullying, parental divorce, war conflicts, loss of a loved one, long-term illness of a family member, natural disasters, and other stressful situations. Research confirms the relationship between ACEs and neurodevelopmental and behavioral disorders in children, involving numerous neurodevelopmental and behavioral conditions such as behavioral problems, depression, and autism spectrum disorder in children aged 0-5 years[3],[4].

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[1] Burkhart K, Ievers-Landis CE, Huth-Bocks A. Introduction to the Special Issue on Adverse Childhood Experiences (ACEs): Prevention, Intervention, and Access to Care. Children (Basel). 2022 Aug 11;9(8):1205. doi: 10.3390/children9081205. PMID: 36010095; PMCID: PMC9406869.

[2] Howell KH, Miller-Graff LE, Martinez-Torteya C, Napier TR, Carney JR. Charting a Course towards Resilience Following Adverse Childhood Experiences: Addressing Intergenerational Trauma via Strengths-Based Intervention. Children (Basel). 2021 Sep 24;8(10):844. doi: 10.3390/children8100844. PMID: 34682109; PMCID: PMC8534646.

[3] Zarei K, Xu G, Zimmerman B, Giannotti M, Strathearn L. Adverse Childhood Experiences Predict Common Neurodevelopmental and Behavioral Health Conditions among U.S. Children. Children (Basel). 2021 Aug 31;8(9):761. doi: 10.3390/children8090761. PMID: 34572191; PMCID: PMC8471662.

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Adverse experiences can be caused by various factors and do not always involve abuse or neglect. They can also be the result of natural life events or accidental situations that can negatively affect a child's health over the course of their life. Prevention of adverse experiences can include a broader community approach, including parent education, family support, bullying prevention in schools, and a range of community initiatives and supports for vulnerable children.

ACEs are related to traumatic events that occurred before a child reached 18 years of age. ACEs also include all types of abuse and neglect, such as parental substance use, imprisonment, or domestic violence. ACEs also include situations that can cause trauma to a child, such as the presence of a parent with a serious mental illness or a complicated parental divorce. A landmark study from the 1990s found a significant relationship between the number of ACEs a person experienced and a range of negative outcomes in adulthood, including poor physical and mental health, substance use, and risky behavior[5]. The more adverse experiences a person had, the greater the risk of these health and social consequences. Recent studies have shown that, compared to the general population, vulnerable children or children at risk are much more likely to have experienced at least four adverse events (42 % compared to 12.5%)[6]. Adverse experiences and situations occur more frequently in children than we might expect. A Czech study from 2013 shows a high prevalence of adverse experiences among 1760 randomly selected university students in the Czech Republic. Emotional abuse was reported by 20.7%, physical abuse by 17.1%, sexual abuse by 6.4%, and physical neglect by 8.0%. The rate of dysfunctional households was also high: drug use in the household was reported by 4.9%, alcohol abuse by 15.3%, mental disorders by 13.4%, violence by parents by 22.1%, and parental separation by 23%. Thirty-

[4] Ronis S.D., Lee E., Cuffman C., Burkhart K. Impact of social and relational adversity on access to services among US children with autism spectrum disorder 2016–2019. Children. 2021;8:1099. doi: 10.3390/children8121099.

[5] Centers for Disease Control and Prevention. (2016). *About the CDC-Kaiser ACE study: Major findings*. Retrieved from https://www.cdc.gov/violenceprevention/aces/about.html

[6] ACEs in young children involved in the child welfare system. Retrieved from https://www.flcourts.org/content/download/215886/file/ACEsInYoungChildrenInvolvedInTheChildWelfareSystem.pdf (opens in new window); Centers for Disease Control and Prevention. (2016). About the CDC-Kaiser ACE study: Data and statistics. Retrieved from https://www.cdc.gov/violenceprevention/aces/about.html.

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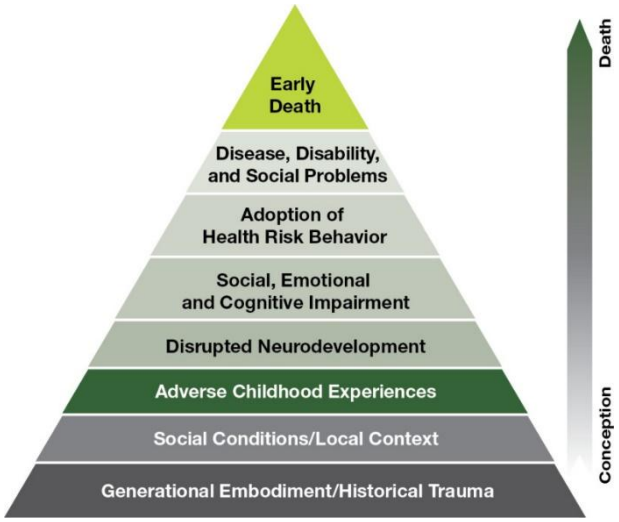
eight percent experienced no adverse experience in childhood, while 9.9% reported experiencing four or more types of adverse experiences[7].

Figure 1: Mechanisms by which adverse childhood experiences influence health and well-being throughout the lifespan[8]



In situations of prolonged childhood trauma, the child's brain and body produce stress hormones due to overload, which can damage the function and structure of the brain, increase the risk of stress-related diseases, and affect cognitive disorders in adulthood. Since the child's brain is developing at a rapid pace, this can be particularly risky for children and can change the way they learn, respond to stress, and make decisions in various situations for the rest of their lives. Developmental trauma from childhood can lead to the manifestation of chronic diseases in adulthood, such as cardiovascular diseases, anxiety, and depression, substance use including the misuse of medications (as a way to cope with adverse situations or painful emotions), violence, and becoming a victim of violence, for example, bullying and abuse.

1. Prevalence

Adverse Childhood Experiences (ACEs), including maltreatment and family dysfunctions, are among the major factors contributing to the global burden of disease and health

[7] Velemínksy et al (2020) Prevalence of adverse childhood experiences (ACE) in the Czech Republic https://pubmed.ncbi.nlm.nih.gov/32063382/

[8] Centers for Disease Control and Prevention. About the CDC-Kaiser ACE Study. 2020a. Last update April 6, 2021. https://www.cdc.gov/violenceprevention/aces/about.html. Accessed August 6, 2021.

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disadvantage. Over the last 25 years, a significant amount of knowledge about ACEs has emerged globally. A synthesis of available evidence included 206 studies from 22 countries with 546,458 adult participants. The overall prevalence for five areas of ACEs was found to be: 39.9% (95% CI: 29.8-49.2) for no ACE; 22.4% (95% CI: 14.1-30.6) for one ACE; 13.0% (95% CI: 6.5-19.8) for two ACEs; 8.7% (95% CI: 3.4-14.5) for three ACEs; and 16.1% (95% CI: 8.9-23.5) for four or more ACEs. Subsequent moderated analyses clearly demonstrated that the prevalence of 4+ ACEs is higher in the population with a history of mental illness (47.5%; 95% CI: 34.4-60.7) and with substance abuse or dependency (55.2%; 95% CI: 45.5-64.8), as well as among individuals from low-income households (40.5%; 95% CI: 32.9-48.4) and those without housing (59.7%; 95% CI: 56.8-62.4). There was also evidence that the prevalence of ACE 4+ was higher among minority racial/ethnic groups, especially when comparing estimates from the population that identifies as Native American/Indigenous (40.8%; 95% CI: 23.1-59.8) to the population that identifies as White (12.1%; 95% CI: 10.2-14.2) and Asian (5.6%; 95% CI: 2.4-10.2). Therefore, ACEs are common in the general population, but there are differences in their prevalence. ACEs are among the primary precursors to endangering individual well-being and, as such, represent an urgent social problem globally[9].

The 10-item ACE questionnaire asks respondents whether they experienced any of the following events before reaching the age of 18: sexual abuse, physical abuse, emotional abuse, physical or emotional neglect, growing up in a family where one or both parents suffered from mental illness or substance abuse, were imprisoned or lived separately, and/or were perpetrators or victims of domestic violence, physical/emotional neglect, and divorce/separation of parents. The questionnaire is consistent, allowing for the creation of a comprehensive evidence source. It has valid replication in different time and geographical contexts and also comparisons between groups with different sociodemographic, economic, and medical-clinical characteristics and risk profiles.

In systematic research searching, a total of 11,920 non-duplicate records were identified, of which 4,656 full-text articles were reviewed for inclusion. Two hundred six studies met the full criteria for inclusion, from which data for this review were obtained, selecting prevalence shares in multiple categories. The 206 studies represented 546,458 adults. One hundred

[9] Madigan S, Deneault AA, Racine N, Park J, Thiemann R, Zhu J, Dimitropoulos G, Williamson T, Fearon P, Cénat JM, McDonald S, Devereux C, Neville RD. Adverse childhood experiences: a meta-analysis of prevalence and moderators among half a million adults in 206 studies. World Psychiatry. 2023 Oct;22(3):463-471. doi: 10.1002/wps.21122. PMID: 37713544; PMCID: PMC10503911. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10503911

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seventy-two studies reported data from North America (83.5%), 20 from Europe (9.7%), six from Asia (2.9%), four from Australia and New Zealand (1.9%), two from South America (1.0%), and one each from Africa (0.5%) and the Caribbean (0.5%). The average age of the study samples was 33.9 ± 11.7 years, and the average proportion of women was 35.5%. The racial/ethnic profile of the sample from the included studies was as follows (since some studies allowed participants to indicate >1 category, percentages do not add up to 100%): White (58.3%), Black (26.1%), Hispanic (17.6%), Asian (13.3%), Native American/Indigenous (12.1%), Mixed (8.3%), Other unspecified (11.1%).

Evidence indicates that the prevalence of ACE 4+ was higher in racially-ethnically minority groups, especially when comparing study estimates among individuals who identified as Native American with those who identified as White or Asian (ratio: 1.20; 95% CI: 1.05-1.37). There were also good indications that the prevalence of 0 ACE was lower among samples of individuals involved in the criminal justice system (ratio: 0.88; 95% CI: 0.80-0.96). Some evidence suggested that the prevalence of 4+ ACEs was higher among individuals of Hispanic origin (compared to White individuals) and among those who had committed misdemeanors or criminal offenses in the past. Finally, some evidence suggested that the prevalence of 0 ACE was higher among men (compared to women) and lower in samples from Europe compared to North America. There is weak evidence that the prevalence of ACE 0 or 4+ would differ among assessment methods. There was strong evidence that differences in the prevalence of individual ACE categories based on age and study quality were only minor.

Research shows that lesser social and material resources in families are among the strongest predictors of child maltreatment. Social policies that reduce income inequality and increase social security, access to affordable education, better-paid job opportunities, and supportive parenting policies (e.g., paid parental leave, supportive family work policies) are likely to help mitigate collective exposure to adverse experiences in childhood[10].

Further extensive prevalence studies bring data on adverse childhood experiences (ACEs) as potentially preventable traumatic events that occur in individuals under 18 and are associated with a range of negative outcomes; data from 25 states show that ACEs are common among adults in the USA. Differences in ACE can often be attributed to the social

[10] Madigan S, Deneault AA, Racine N, Park J, Thiemann R, Zhu J, Dimitropoulos G, Williamson T, Fearon P, Cénat JM, McDonald S, Devereux C, Neville RD. Adverse childhood experiences: a meta-analysis of prevalence and moderators among half a million adults in 206 studies. World Psychiatry. 2023 Oct;22(3):463-471. doi: 10.1002/wps.21122. PMID: 37713544; PMCID: PMC10503911. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10503911/

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and economic environment in which some families live. Understanding the prevalence of ACE, stratified by sociodemographic characteristics, is crucial for addressing ACE prevention. Based on data from the Behavioral Risk Factor Surveillance System (BRFSS) from 2011-2020, the CDC provides estimates of the prevalence of ACEs among adults in the USA in all 50 states and the District of Columbia and according to key sociodemographic characteristics. In total, 63.9% of adults in the USA reported at least one ACE; 17.3% reported four or more ACEs. The experience of four or more ACEs was most common among women (19.2%), adults aged 25-34 (25.2%), adults who are not American Indians or Alaska Natives (32.4%), adults who are not of various races (31.5%), adults with less than high school education (20.5%), and those who were unemployed (25.8%) or unable to work (28.8%)[11].

1.1 ACE Prevalence in EU and USA Countries

Estimate the annual health and financial burden caused by ACEs in 28 European countries. In a systematic review and meta-analysis, and in the MEDLINE, CINAHL, PsycINFO, Applied Social Sciences Index and Abstracts, Criminal Justice Databases, and Education Resources Information Center databases, quantitative studies (published from January 1, 1990, to September 8, 2020) reported the prevalence of ACEs and the risk of health outcomes associated with ACEs. Summary relative risks for the association between ACEs and harmful alcohol use, smoking, illegal drug use, high body mass index, depression, anxiety, interpersonal violence, cancer, type 2 diabetes, cardiovascular disease, stroke, and respiratory disease were calculated. Country-level ACE prevalence was calculated based on available data. Population attributable fractions (PAFs) due to ACEs were created for individual countries and were used to estimate disability-adjusted life years (DALYs) in 2019. Financial costs (in USD in 2019) were estimated using an adjusted human capital approach.

In most countries, the largest share of PAF due to ACEs was for interpersonal violence (range 14.7-53.5%), followed by harmful alcohol use (15.7-45.0%), illegal drug use (15.2-44.9%), and anxiety (13.9-44.8%). The highest costs attributed to ACEs for harmful alcohol use, smoking, and cancer were the highest in many countries. Total costs caused by ACEs ranged from 0.1 billion USD (Montenegro) to 129.4 billion USD (Germany), corresponding to 1.1% (Sweden and Turkey) to 6.0% (Ukraine) of the gross domestic product of individual countries.

[11] Swedo EA, Aslam MV, Dahlberg LL, et al. Prevalence of Adverse Childhood Experiences Among U.S. Adults — Behavioral Risk Factor Surveillance System, 2011–2020. MMWR Morb Mortal Wkly Rep 2023; 72:707–715. DOI: http://dx.doi.org/10.15585/mmwr.mm7226a2. https://www.cdc.gov/mmwr/volumes/72/wr/mm7226a2.htm

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Data availability on ACEs varies significantly across countries, and country-level estimates cannot be directly compared. However, the findings suggest that ACEs are associated with significant health and financial costs in European countries. It is necessary to recognize the costs incurred due to not investing in ACE prevention, especially at a time when countries are trying to recover from the COVID-19 pandemic, which disrupted services and education and potentially increased ACE risk factors[12].

A cross-sectional survey was conducted in the Czech Republic to estimate the prevalence of child maltreatment and Adverse Childhood Experiences (ACEs), due to a lack of data on these phenomena. The survey was carried out among 1,760 randomly selected students from five Czech universities. Participants filled out a questionnaire on adverse childhood experiences. The results showed that the prevalence of child maltreatment is high: emotional abuse was reported by 20.7%, physical abuse by 17.1%, sexual abuse by 6.4%, and physical neglect by 8.0%. There was also a high rate of household dysfunction: the use of street drugs in the household was reported by 4.9%, alcohol abuse by 15.3%, and mental disorders by 13.4%[13].

Adverse Childhood Experiences (ACEs) have a significant negative impact on health status in later life. This study presents data on the prevalence of ACEs, psychological stress, and symptoms related to trauma among transgender and gender-diverse (TGD) individuals compared to cisgender individuals. Adult TGD individuals (n = 35) and a corresponding sample of non-psychiatric hospital patients (n = 35) were surveyed from September 2018 to March 2019. Participants completed the Maltreatment and Abuse Chronology of Exposure Scale to assess ACEs, as well as the Brief Symptom Inventory and the Essener Trauma Inventory to evaluate psychological stress and trauma-related symptoms. TGD patients reported a higher number of ACEs than cisgender patients (0.7 vs. 2.4; $p < 0.001$; $d = 0.94$). A total of 28.6% of TGD patients vs. 5.7% of cisgender patients reported four or more ACEs ($p < 0.001$). The most common forms of ACEs were parental abuse (54.3%) and peer abuse (54.3%). No significantly increased prevalence of sexual abuse was found ($p > 0.05$). TGD patients also reported a higher prevalence of depression (48.4% vs. 5.7%, $p < 0.001$),

[12] Karen Hughes, Kat Ford, Mark A Bellis, Freya Glendinning, Emma Harrison, Jonathon PassmoreHealth and financial costs of adverse childhood experiences in 28 European countries: a systematic review and meta-analysis. Copyright © 2021 World Health Organization; licensee Elsevier https://www.thelancet.com/journals/lanpub/article/PIIS2468-2667(21)00232-2/fulltext

[13] Velemínský M Sr, Dvořáčková O, Samková J, Rost M, Sethi D, Velemínský M Jr. Prevalence of adverse childhood experiences (ACE) in the Czech Republic. Child Abuse Negl. 2020 Apr; 102:104249. doi: 10.1016/j.chiabu.2019.104249. Epub 2020 Feb 13. PMID: 32063382. https://pubmed.ncbi.nlm.nih.gov/32063382/

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symptoms of post-traumatic stress disorder (59.4% vs. 13.8%, p <0.001), and anxiety (58.1% vs. 28.6%, p = 0.016). Healthcare providers should be aware of ACEs and assess them, especially in vulnerable groups such as TGD individuals, and create a safe space through open and affirming care[14].

The aim of this study in Austria was to determine the prevalence rate of ACEs among a mixed sample of hospital patients. The study involved hospitalized and outpatient patients from seven departments of the University Hospital in Innsbruck, Austria. They filled out questionnaires regarding retrospective assessment of ACEs, physical and mental health, and experiences with domestic violence. The impact of ACEs on patients' health was evaluated by calculating odds ratios (OR) in binary logistic regressions. The analysis results included a total of n = 2392 (74.3% of all approached patients). The results showed that 36.1% of them reported at least one form of ACE, and 6.3% were polyvictimized (i.e., reported ≥ 4 forms of ACEs). The most common forms of ACEs were emotional abuse (18.3%), peer abuse (14.2%), and neglect (12.3%). ACEs were significantly associated with increased ORs for various physical diseases, mental health problems, and domestic violence. Retrospectively assessed ACEs are highly prevalent among hospital patients, and exposure to a high number of ACEs is associated with worsened physical and mental health. Identifying patients with symptoms following ACEs and referring them to appropriate treatment is a crucial challenge for healthcare professionals[15].

The goal of the Italian study was to determine the prevalence of child abuse in Italy using a tool developed by the International Society for the Prevention of Child Abuse and Neglect (ISPCAN) and adapted to Italian conditions. The study involved 312 young adults, 106 men (34%) and 206 women (64%), aged 18-24 years from various universities and workplaces in Northwest Italy, who used the retrospective ISPCAN Child Abuse Screening Tool (ICAST-R). Compared to data from other countries, the Italian context shows a high incidence of emotional abuse (62%), followed by physical abuse (44%) and sexual abuse (18%). While men reported physical abuse more frequently, women reported more frequent exposure to sexual and emotional abuse. Furthermore, the validity of the ICAST tool was evaluated. The

[14] Feil K, Riedl D, Böttcher B, Fuchs M, Kapelari K, Gräßer S, Toth B, Lampe A. Higher Prevalence of Adverse Childhood Experiences in Transgender Than in Cisgender Individuals: Results from a Single-Center Observational Study. J Clin Med. 2023 Jul 5;12(13):4501. doi: 10.3390/jcm12134501. PMID: 37445536; PMCID: PMC10342728. https://pubmed.ncbi.nlm.nih.gov/37445536/

[15] Riedl D, Lampe A, Exenberger S, Nolte T, Trawöger I, Beck T. Prevalence of adverse childhood experiences (ACEs) and associated physical and mental health problems amongst hospital patients: Results from a cross-sectional study. Gen Hosp Psychiatry. 2020 May-Jun;64:80-86. doi: 10.1016/j.genhosppsych.2020.03.005. Epub 2020 Mar 19. PMID: 32304934. https://pubmed.ncbi.nlm.nih.gov/32304934/

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internal consistency of the three subscales was similar to the results of previous studies, with Cronbach's alpha ranging from 0.51 for emotional abuse to 0.59 for sexual abuse. It is observed that children undergo forms of emotional and physical abuse for disciplinary reasons, and for this reason, such abuse is excused. In this regard, greater preventive measures should be adopted. Last but not least, our study contributed to the validation of the ICAST-R tool for use in the Italian context[16].

A comprehensive American study examined the relationship between adverse childhood experiences (ACEs), including abuse and neglect, and serious family dysfunctions and the premature death of family members. Given that ACEs increase the risk of many major causes of death in adults and tend to have intergenerational transmission, the hypothesis was that individuals who reported more ACEs would more frequently have family members at risk of premature death. The study included 17,337 adults who completed a questionnaire about 10 types of ACEs and whether any of their family members died before the age of 65. The prevalence of premature death among family members and its association with ACEs were evaluated. The results showed that family members of respondents who experienced any type of ACE had a higher likelihood of increased prevalence of premature death compared to family members of respondents without such experiences ($p < 0.01$). The highest risk occurred among those who reported being physically neglected in childhood and living with family members who abused substances or committed criminal acts. A strong graded relationship between the number of ACEs and premature mortality in the family was observed across all age groups, and the comparison of groups reporting 0 ACEs and ≥ 4 ACEs yielded an odds ratio (OR) of 1.8 (95% CI, 1.6-2.0). The result indicates that adverse childhood experiences can be an indicator of a chaotic family environment, leading to an increased risk of premature death among family members[17].

A Dutch study from a multi-informant perspective focused on the prevalence of Adverse Childhood Experiences (ACEs) among students with emotional and behavioral disorders (EBD) in special education in year 3. ACEs are associated with an increased risk of serious emotional problems and behavior problems, yet little research is published about ACEs

[16] Prino, L.E., Longobardi, C. & Settanni, M. Young Adult Retrospective Reports of Adverse Childhood Experiences: Prevalence of Physical, Emotional, and Sexual Abuse in Italy. Arch Sex Behav 47, 1769–1778(2018).https://doi.org/10.1007/s10508-018-1154-2
https://link.springer.com/article/10.1007/s10508-018-1154-2

[17] Anda RF, Dong M, Brown DW, Felitti VJ, Giles WH, Perry GS, Valerie EJ, Dube SR. The relationship of adverse childhood experiences to a history of premature death of family members. BMC Public Health. 2009 Apr 16; 9:106. doi: 10.1186/1471-2458-9-106. PMID: 19371414; PMCID: PMC2674602.

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among students with EBD in special schools. The prevalence of ACEs among these 174 students (students were represented from more than 10 ethnicities, most commonly students from the Netherlands, Morocco, the Republic of Suriname, the Netherlands Antilles, Ghana, and Turkey), from five urban special schools in the Netherlands (Mage = 11.58 years; 85.1% boys) was systematically examined from a multi-informant perspective, using student self-report (n = 169), parent reports (n = 95), and school records (n = 172). Nearly all students experienced at least one ACE (96.4% self-report, 89.5% parent report, 95.4% school records) and more than half experienced four or more ACEs (74.5% self-report, 62.7% parent report, 59.9% school records). The vast majority of students experienced maltreatment, often occurring together with household problems and community stressors. Additionally, 45.9% of students experienced their first ACE before the age of 4. EBD students in SE, living in poverty or in single-parent families, more frequently reported multiple ACEs. Understanding the prevalence of ACEs can help comprehend the severe issues and poor long-term outcomes for students with EBD in special education[18].

From a cross-sectional study in Austria of a large sample of outpatient patients, a higher incidence of Adverse Childhood Experiences (ACEs) was found among transgender individuals compared to cisgender individuals. The study results were from a single clinical center. This study presents data on the prevalence of ACEs, psychological stress, and trauma-related symptoms among transgender and gender-diverse (TGD) individuals compared to cisgender individuals. Adult TGD individuals (n = 35) and a corresponding sample of non-psychiatric hospital patients (n = 35) were surveyed from September 2018 to March 2019. Participants completed the Maltreatment and Abuse Chronology of Exposure Scale to assess ACEs, as well as the Brief Symptom Inventory and the Essener Trauma Inventory to evaluate psychological stress and trauma-related symptoms. TGD patients reported a higher number of ACEs than cisgender patients (0.7 vs. 2.4; $p < 0.001$; $d = 0.94$). A total of 28.6% of TGD patients vs. 5.7% of cisgender patients reported four or more ACEs ($p < 0.001$). The most common forms of ACEs were parental abuse (54.3%) and peer abuse (54.3%). No significantly increased prevalence of sexual abuse was found ($p > 0.05$). TGD patients also reported a higher prevalence of depression (48.4% vs. 5.7%, $p < 0.001$),

[18] Offerman ECP, Asselman MW, Bolling F, Helmond P, Stams GJM, Lindauer RJL. Prevalence of Adverse Childhood Experiences in Students with Emotional and Behavioral Disorders in Special Education Schools from a Multi-Informant Perspective. Int J Environ Res Public Health. 2022 Mar 14;19(6):3411. doi: 10.3390/ijerph19063411. PMID: 35329097; PMCID: PMC8948877.

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symptoms of post-traumatic stress disorder (59.4% vs. 13.8%, p <0.001), and anxiety (58.1% vs. 28.6%, p = 0.016) [19].

Given the findings, targeted prevention is essential. Implementing and expanding evidence-based interventions to prevent maltreatment in childhood is crucial. Programs such as home visitation and interventions focused on coaching parents and enhancing parenting skills – especially in high-risk families – would be effective preventive measures against abuse and neglect and mistreatment of children in households.

2. Consequences of Adverse Childhood Experiences in Children

Over nearly three decades, a vast amount of neurobiological research has accumulated, revealing how prolonged abuse and neglect in childhood can cause pervasive and lasting biological and psychological damage, akin to patients diagnosed with post-traumatic stress disorder. Researchers in the field of developmental psychopathology have demonstrated that childhood maltreatment and neglect are associated with structural and functional abnormalities in various areas of the brain, including the Pre-frontal cortex (logic and reasoning), Corpus callosum (integrating the right and left hemisphere), Amygdala (fear and facial recognition), Temporal lobe (hearing, verbal memory, language function), Hippocampus (memory).

These impacts of child abuse may help explain why children with ACEs quickly recognize and stare at angry faces more than non-abused children and why they perceive anger in faces with ambiguous expressions, while missing other emotions. Abuse also disrupts the neuroendocrine system and alters the production of hormones, particularly cortisol, which regulates stress, and neurotransmitters such as adrenaline, dopamine, and serotonin, that is, chemicals that influence emotional state, mood, and behavior.

The emerging chronic trauma reduces immunity and creates the roots of diseases that may manifest far in the future. For example, disruptions in cortisol levels due to trauma cause abused children to be later in life susceptible to chronic fatigue syndrome, depression, and anxiety.

[19] Feil K, Riedl D, Böttcher B, Fuchs M, Kapelari K, Gräßer S, Toth B, Lampe A. Higher Prevalence of Adverse Childhood Experiences in Transgender Than in Cisgender Individuals: Results from a Single-Center Observational Study. J Clin Med. 2023 Jul 5;12(13):4501. doi: 10.3390/jcm12134501. PMID: 37445536; PMCID: PMC10342728.

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The most extensive evidence of the lifelong and malignant consequences of childhood trauma comes not from the field of mental health but from epidemiological studies. In 1995, internist Vincent Felitti [20] and epidemiologist Robert Anda[21],[22] from the Centers for Disease Control and Prevention initiated the ACE (Adverse Childhood Experiences) study, aimed at tracking the relationship between childhood maltreatment, neglect, and other losses or dysfunctions in the family and mental and physical health in adulthood.

Adversity and adverse childhood experiences are a major risk factor for many of the most common biomedical diseases and causes of death in society, such as diabetes, cardiovascular and pulmonary diseases, liver and kidney diseases, certain types of cancer, sexually transmitted diseases, and autoimmune diseases. Childhood abuse or neglect increases the likelihood of committing crimes and the probability of committing a violent crime. All these impacts have a significant effect on economic burden and many other risk associations globally. Caring for children's mental health and hospitalization leads to increased healthcare costs for adults who were abused in childhood.

3. Ten categories of Adverse Childhood Experiences (ACEs)

3.1 Abuse

1. Emotional abuse: this includes abuse by a close person such as a parent, foster parent or adult living in the child's household. Forms of abuse include but are not limited to: name-calling, insults, humiliation, lack of respect, or the adult behaving in a way that makes the child fearful of physical harm. Emotional delays in socialisation or inappropriate emotional development. Loss of self-confidence or self-esteem. Social withdrawal or loss of interest or enthusiasm, depressive symptoms. Avoidance of certain situations, such as refusal to go to school or ride the bus. A child desperately seeking the affection of an adult or peers. Parent consistently insults or berates the child, using negative terms such as "worthless" or "should not have been born", using harsh physical punishment, locking the child up and not letting him/her out. The parent demands an unreasonable level of physical or academic education. The parent expects the child to give the parent attention and care. The parent may also be jealous of other family members who receive attention from the child.

[20] Felitti VJ. The Relation Between Adverse Childhood Experiences and Adult Health: Turning Gold into Lead. Perm J. 2002 Winter;6(1):44-47. doi: 10.7812/TPP/02.994. PMID: 30313011; PMCID: PMC6220625.
[21] https://www.aceinterface.com/Robert_Anda.html
[22] Anda RF, Dong M, Brown DW, Felitti VJ, Giles WH, Perry GS, Valerie EJ, Dube SR. The relationship of adverse childhood experiences to a history of premature death of family members. BMC Public Health. 2009 Apr 16; 9:106. doi: 10.1186/1471-2458-9-106. PMID: 19371414; PMCID: PMC2674602.

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2. Physical abuse: the parent or person living in the household with the child physically hits, pushes, throws objects at, or slaps the child. The child develops unexplained injuries such as bruises, fractures or burns. In addition, injuries that do not fit the explanation given or do not fit the child's developmental abilities. The parent blames the child for the problems and physically punishes the child.

3. Sexual abuse: an adult, relative, family friend, or stranger who was several years older than the child ever touched or groped the child's body in a sexual manner, forced the child to touch the child's body in a sexual manner, or attempted to have any type of sexual contact with the child. Sexual conduct or knowledge that is inappropriate for the age of the child, pregnancy or sexually transmitted infection. Pain, bleeding or injury to the genitals or anal opening. A child's statement that he or she has been sexually abused. Inappropriate sexual behavior towards other children.

3.2 Household Environment

1.Violent treatment of the mother: the mother or stepmother has ever been aggressively pushed or grabbed by your father (or stepfather) or your mother's boyfriend, slapped, thrown something at, kicked, bitten, hit with a fist, hit with something hard, repeatedly hit her for a period of time, or threatened her with a knife or a gun.

2. Substance abuse in the home: the household member frequently drinks alcohol in the home where the child lives or is a problem alcohol user or uses drugs (marijuana, meth, heroin, etc.).

3.Mental illness in the household: the household member has been depressed or is mentally ill (long-term hospitalization due to serious mental illness) or the household member has attempted suicide.

4. Parental separation or divorce: Parents have separated or divorced in the past.

5. Household member incarcerated or in custody: Household member has been or is incarcerated.

3.3 Denial

1. Emotional neglect: someone in the family never or rarely helped the child feel loved, people in the family never or rarely cared for each other and felt close to each other. The family was never or rarely a source of strength and emotional support. Loss of previously acquired developmental skills.

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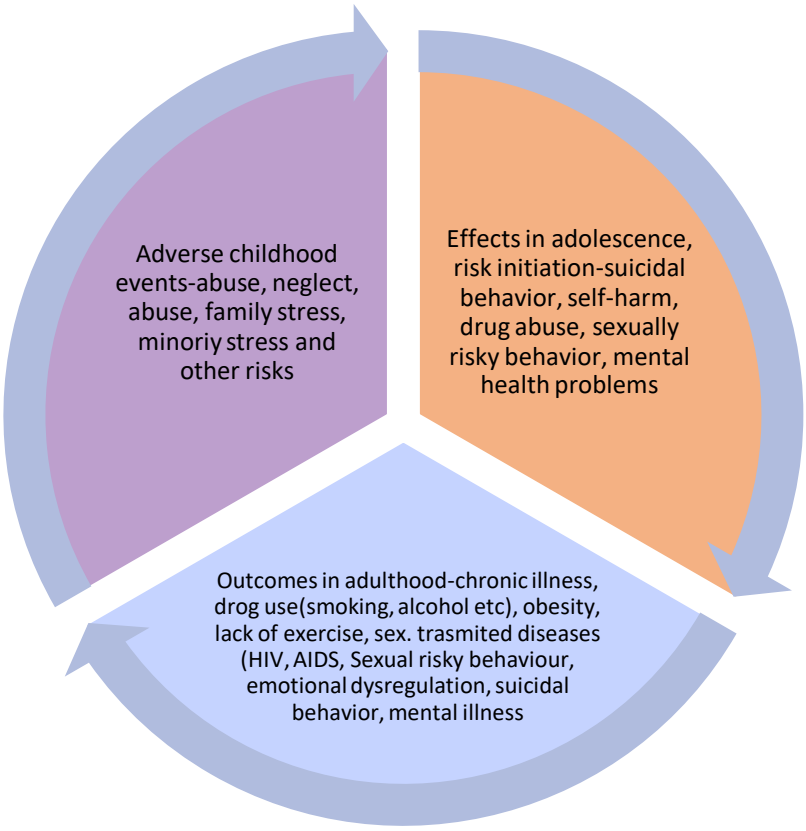
2. Physical neglect: never or rarely cared for, protected, or took to the doctor; child did not have enough food or clothing. Parents or caregivers were often drunk, high, or lacked the capacity to care for the child. The child had to wear dirty clothes, did not have toys and school.

Figure 2: The Cycle of Ace Influence from Childhood to Adulthood



4. The Impact of Negative Childhood Experiences on Health

If an individual has experienced a number of adverse experiences (e.g., four or more), the higher the risk that it will negatively reflect on their health and mental well-being in adulthood. The first years of a child's life have a significant impact on their future learning, behavior, socialization, and emotional relationships, which are prototypes of emotional attachment in further relationships. If a child has experienced severe trauma at a time when their brain is still developing, it can have serious social and health consequences later in life. Adverse

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Childhood Experiences not only create toxic levels of stress that can damage brain development but can impair health development comprehensively. These experiences can manifest negatively in many areas of health and life opportunities and have a long-term impact on a person's life.

Chronic exposure to psychosocial stressors, such as ACEs, can lead to dysregulation of many physiological systems[23]. This cumulative "wear and tear" on all systems is referred to as allostatic load (AL: the cumulative physiological burden resulting from repeated efforts to adapt to stressors) and is assumed to increase the risk of disease. The AL framework assumes that psychosocial stressors trigger the secretion of primary mediators (e.g., glucocorticoids and catecholamines), which have subsequent effects and disrupt secondary mediators across immune, metabolic, and cardiovascular systems[24]. Previous studies have shown that adversity in childhood is associated with an increased incidence of AL in adulthood[25].

The cumulative health risk was associated with increased AL as early as age 9, and this connection persisted up to 17 years[26]. The findings suggest that the biological embedding of adverse circumstances occurs already in childhood. Furthermore, although most AL studies are focused primarily on the adult population, there is a lack of consistency in biological markers. Measuring AL in children requires careful consideration of which biomarkers are most significant at different stages of the developmental period. By examining stress-related biomarkers in early and middle childhood, we can begin to form a consensus on how to operationalize AL in the child population. Finally, research on AL as a predictor of health outcomes in children is limited, with some evidence suggesting that higher AL may be associated with an increased risk of obesity and asthma[27],[28].

[23] McEwen BS, Stellar E. Stress and the individual. Mechanisms leading to disease. Archives of Internal Medicine. 1993; 153:2093–2101. [PubMed]
[24] McEwen BS, Seeman T. Protective and damaging effects of mediators of stress. Elaborating and testing the concepts of allostasis and allostatic load. Annals of the New York Academy of Sciences. 1999; 896:30–47.
[25] Barboza Solís C, Kelly-Irving M, Fantin R, Darnaudéry M, Torrisani J, Lang T, Delpierre C. Adverse childhood experiences and physiological wear-and-tear in midlife: Findings from the 1958 British birth cohort. Proc Natl Acad Sci U S A. 2015 Feb 17;112(7):E738-46. doi: 10.1073/pnas.1417325112. Epub 2015 Feb 2. PMID: 25646470; PMCID: PMC4343178.
[26] Doan SN, Dich N, Evans GW. Childhood cumulative risk and later allostatic load: mediating role of substance use. Health Psychology: Official Journal of the Division of Health Psychology, American Psychological Association. 2014; 33:1402–9. [PubMed]
[27] Cedillo YE, Murillo AL, Fernández JR. The association between allostatic load and anthropometric measurements among a multiethnic cohort of children. Pediatr Obes. 2019 Jun;14(6):e12501. doi: 10.1111/ijpo.12501. Epub 2019 Jan 17. PMID: 30654410; PMCID: PMC6504576.

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4.1 Physical Health

Health Problems: Negative experiences can affect a child's physical health, such as adverse toxic stress that can impact the immune system. Increased sensitivity and capacity in the sensory areas (sounds and noise, light stimuli, smells, etc.), leading to defensive reactions. Children may experience sleep problems and nightmares, an inability to get out of bed, hygiene issues, and an inability to maintain healthy habits. Insufficient attention to medical, dental, or psychological issues, or lack of necessary follow-up care.

Eating Problems: In some children, eating disorders may manifest as a reaction to stress or negative experiences. Poor growth, excessive weight with health complications.

4.2 Emotional and Psychological Area

Trauma: Physical or emotional trauma can cause lasting emotional consequences, such as anxiety, depression, minority stress, or post-traumatic stress disorder (PTSD).

Neglect: A lack of attention, love, and care can lead to inadequate emotional development, low self-esteem, and self-worth.

Tab 1: Effects of ACEs on Chronic Conditions, Health Risk Behaviours and Psychosocial Problems

Chronic health conditions	**Health risk behaviour**	**Mental health and substance use disorders**	**Social impacts**
- Cardiovascular disease heart disease - Central stroke - Asthma - Chronic obstructive pulmonary disease - Cancer - Kidney disease - Diabetes - Obesity	- Smoking - Excessive alcohol use - Substance abuse - Physical inactivity - Sexually risky behaviour - Suicidal ideation and suicidal behaviour	- Depression, anxiety - Substance use disorders including alcohol, addictive drugs and tobacco	- Unavailability of health insurance - Unemployment - Unavailability of health and social services - Less than secondary education

[28] Barry LE, O'Neill C, Heaney LG. Association between asthma, corticosteroids and allostatic load biomarkers: a cross-sectional study. Thorax. 2020; 75:835–41.

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The effects of ACEs can be transmitted from generation to generation (transgenerational transmission of these traumatic experiences) if children do not have protective elements and resilience enhancements such as positive childhood experiences, some emotional attachment, or caring adults in their lives. If families experience generations of historical and systemic violence, stress, or live in poverty, the effects of ACEs can add up over time.

4.3 Social Area

Loneliness: A child who has negative experiences may feel isolated from their peers. This can lead to social isolation and difficulties in forming lasting or meaningful relationships.

Bullying: Experiences of bullying can negatively impact a child in both the school environment and outside of it. Children may experience fear and low self-esteem.

Family Conflicts: An unpleasant home environment due to family conflicts or divorce can have long-term adverse effects on a child's emotional stability and distrust in the adult world.

4.4 Behavior

A child who has experienced negative events may exhibit behaviors such as impulsivity and aggression, defiance, or opposition. Self-harm or attempts at suicide are common among these children with adverse experiences.

Aggressive Behavior: Children experiencing unpleasant situations may display aggressive behavior as a defensive mechanism, feeling anger, hostility, or being hyperactive.

Escape Behavior: Some children may respond to stress with escape behavior, such as withdrawing into themselves or escaping into fantasy. Depression, anxiety, or unusual fears or a sudden loss of self-confidence may manifest.

Theft: The lack of clothing, toys, theft of food, and other material needs can lead to thefts at home, in school, or in stores.

5. Education

Educational Complications: Adverse experiences can significantly affect a child's academic performance. The child may have difficulties with concentration, decreased motivation and interest, or may have problems with social adaptation at school or in groups. Worsening academic performance and frequent problems with memory, neglect of school obligations, and early dropout from school due to numerous or unexcused absences.

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Cognitive Distortion: A child who has experienced negative events may exhibit distorted thinking, which refers to specific negative beliefs about themselves, others, or the world.

Tab 2: Secondary Effects of Adverse Experiences and Their Impact on School Performance

Cognitive symptoms	Inability to concentrate Forgetfulness Loss of humour/interest in hobbies Inability to make decisions
Emotional symptoms	Anxiety Depression Frequent agitation and crying Irritability Loneliness
Behavioral symptoms	Increased consumption of alcohol or smoking as well as addictive drugs Inability to complete tasks, procrastination Feeling overly critical Avoidance of other people
Physical symptoms	Headaches Abdominal pain and stomach discomfort Sleep problems Weight gain or loss Lack of energy

5.1 The Impact of Adverse Childhood Experiences on Academic Achievement

The impact of Adverse Childhood Experiences (ACEs) on academic outcomes is profound. Beyond the adverse link between ACEs and poor school performance, numerous studies connect various family and community factors with either positive or negative school outcomes. Unwanted experiences occurring during childhood contribute to increased stress according to the number of ACEs and negative outcomes. Recent studies have identified the negative effects of ACEs on a child's development and behavior[29],[30].

[29] Shonkoff JP, Garner AS, Siegel BS, et al; Committee on Psychosocial Aspects of Child and Family Health; Committee on Early Childhood, Adoption, and Dependent Care; Section on Developmental

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The question arises as to how ACEs ultimately affect the academic performance of school-aged children through the long-term fallout of ACEs on human development and health. Another question is whether the impact of ACEs on academic outcomes can be mitigated through preventive interventions and early identification and support for the child's development in the educational process and school environment. Furthermore, the article suggests that correct identification methods can play a crucial role.

ACEs are associated with problems that appear in childhood, including behavioral issues, mental health problems (such as ADHD)[31], and physical health issues (such as obesity, respiratory and recurrent infections)[32],[33]. Similarly, high allostatic load has been linked to greater behavioral difficulties and poorer physical health in children[34].

5.2 Positive Childhood Experiences and Opportunities to Improve the Lives of Children and Adults

To address the impact of Adverse Childhood Experiences (ACEs) and enhance the well-being and financial stability of families, several strategies can be employed:

Strengthening Family Financial Stability: Implementing paid leave, child tax credits, flexible and consistent working hours, support and respite services for young families, housing, and housing affordability can provide significant relief and stability to families, reducing stress and potential for negative family dynamics.

Promoting Social Norms and Legislation Protecting Against Violence: Supporting positive parenting practices and preventive measures that include gender diversity can help in establishing a safer and more inclusive society that values and protects all its members.

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and Behavioral Pediatrics. The lifelong effects of early childhood adversity and toxic stress. Pediatrics. 2012;129(1). Available at: www.pediatrics.org/cgi/content/full/129/1/e232 [PubMed]

[30] Bucci M, Marques SS, Oh D, Harris NB. Toxic stress in children and adolescents. Adv Pediatr. 2016;63(1):403–428[PubMed]

[31] Jimenez ME, Roy W, Schwartz-Soicher O, Lin Y, Reichman NE. Adverse Childhood Experiences and ADHD Diagnosis at Age 9 Years in a National Urban Sample. Academic pediatrics. 2017; 17:356–61.

[32] Hunt TKA, Slack KS, Berger LM. Adverse childhood experiences and behavioral problems in middle childhood. Child Abuse & Neglect. 2017; 67:391–402

[33] Burke NJ, Hellman JL, Scott BG, Weems CF, Carrion VG. The impact of adverse childhood experiences on an urban pediatric population. Child Abuse & Neglect. 2011; 35:408–13. [PMC free article] [PubMed

[34] Rogosch FA, Dackis MN, Cicchetti D. Child maltreatment and allostatic load: Consequences for physical and mental health in children from low-income families. Development and Psychopathology. 2011; 23:1107–24. [PMC free article] [PubMed]

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Helping Children Have a Good Start in Life: Early education programs for children and families, along with affordable pre-school and child care programs, can lay a strong foundation for children's future development and success.

Teaching Healthy Relationship and Interpersonal and Communication Skills: Programs that teach conflict resolution, managing negative feelings and emotions, handling peer pressure, and fostering healthy initiation of romantic relationships can significantly impact young people's ability to form and maintain healthy relationships.

Connecting Youth with Activities and Supportive Adults: School or community-based preventive, mentoring programs, and economically accessible extracurricular activities can engage youth positively, reducing their risk of engaging in harmful behaviors.

Preventively Targeting to Delay or Mitigate Immediate and Long-term Risks: Education on ACEs, offering therapy and treatment for substance abuse, and family-focused systemic therapy can address both the immediate and long-term effects of ACEs on individuals and families.

These comprehensive strategies require collaborative efforts from various sectors including education, healthcare, social services, and the legal system to effectively reduce the prevalence and impact of ACEs on society.

6. Prevention and Suggestions

Supporting families should be a fundamental component of prevention. Creating a positive environment that fosters loving relationships and where a child can feel stable, safe, and, above all, loved, is essential for social stability and satisfaction. In a positive family atmosphere, communication plays a significant role; it should be open, constructively critical, proactive, and focused on identifying and solving problems early before they escalate into serious situations. Psychoeducation for parents is also an important point for the social and emotional development of children and their healthy development. Community-based parent programs can offer skills in parenting and parental skills, communication, conflict resolution, the impact of toxic stress, and resilience building. Community preventive resources or social media and education can provide counseling, peer support groups for parents, and social services online. Educational preventive programs should be integrated into the school education system and focus on wellbeing, positive relationships, and developing emotional intelligence, resilience of the individual, family, and community.

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Prevention also includes legislative measures regarding the Protection of Children's Rights or the prevention of domestic violence. In this context, media literacy, which supports skills to critically evaluate media content and recognize potentially harmful situations even in cyberspace, needs to be mentioned. Parents should adequately control, monitor, and keep track of various apps or games that children use and rationally limit their children's access to content that could be inappropriate or traumatizing. The satisfaction in life of teachers and their mental well-being is a significant protective factor in broader prevention, as they too may have experienced adverse situations in their history. Self-care and taking good care of oneself and one's sources of strength are important. For teachers to successfully and contentedly educate and teach their students, they need self-care and to experience certainty and satisfaction in their professional and personal lives.

6.1 Breaking the Adverse Cycle

If a child grows up in a household experiencing several adverse situations, the likelihood of long-term negative impacts in adulthood increases. Breaking the cycle can be influenced by a number of positive circumstances, including safe stability, relational certainty, and a healthy lifestyle. A greater accumulation of adverse situations and traumatic experiences in childhood does not mean that the fatal cycle of an adverse life path cannot be interrupted. Creating stable, certain, caring relationships that strengthen trust between an adult and a child with adverse childhood experiences can be a crucial step in breaking the cycle. You don't have to be a direct family member or an expert in the field to be a role model for the child. Building trust and relationship is based on authentic and truthful interest and long-term trust building. Opening a respectful conversation about how children feel and why they feel that way can help them build trust in you and explore their feelings in a way they may not have been able to before.

The "Trauma-Informed Care (TIC) model," which consists of several components, is practically applied. It includes, for example, ACE screening, training professionals in recognizing the impact of trauma on health, using preventive interventions and strategies to prevent re-victimization, and supporting personal growth and healing. A limitation is the limited research on TIC approaches applied in prenatal care. Studies have identified some associations between TIC approaches and positive health aspects in infant outcomes[35].

[35] Racine N, Ereyi-Osas W, Killam T, McDonald S, Madigan S. Maternal-Child Health Outcomes from Pre – to Post-Implementation of a Trauma-Informed Care Initiative in the Prenatal Care Setting: A Retrospective Study. Children (Basel). 2021 Nov 18;8(11):1061. doi: 10.3390/children8111061. PMID: 34828774; PMCID: PMC8622334.

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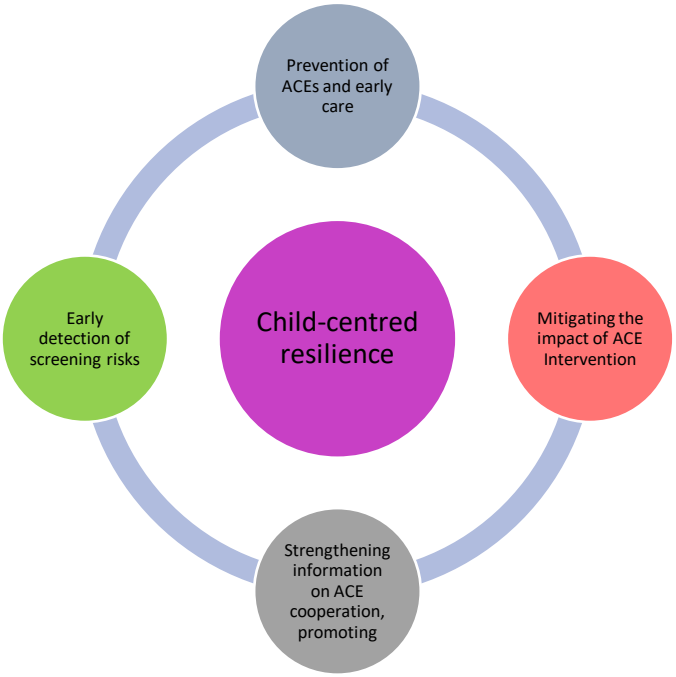
Preventive screening can be carried out in primary care by a family doctor. Early prevention, detection, and assessment of risk and protective factors within the adverse family situation, parental mental health, and the quality of emotional attachment are often competencies of social workers.

Strategies of multidisciplinary preventive care and collaboration of key stakeholders and professionals have a preventive significance in the ecosystem of community local interventions. This approach is focused on the individual/child and supports vulnerable families or families at risk of social exclusion.

6.2 Prosocial Development of ACE Prevention in the Community

Resilience is the ability to overcome stressful periods and cope with adverse circumstances. It is a character skill that can be developed and strengthened through positive experiences and relationships with family, friends, teachers and the community. All of these things can be considered protective factors. No child is miraculously immune or invulnerable to ACEs, just as no individual child is doomed to adverse effects on the health and life of the individual in the face of ACEs. Resilience must be cultivated and continually encouraged in training to overwhelm developmental need.

Figure 3 Child-centered Resilience



There are many ways to build, develop individual and collective resilience (within the family, with peers at school and in the community – locally). At the core of building resilience in

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childhood are positive adult role models who help children cultivate various skills and personal adaptation.

6.3 Adaptive Resilience Skills

These concepts highlight the essential aspects of developing resilience and positive outcomes in children facing challenges:

Competence: The ability to effectively manage stressful situations, requiring the skills to face challenges and the opportunity to practice these skills, making an individual feel capable of handling various difficult situations.

Self-confidence: Belief in one's abilities is rooted in competence. Children gain self-confidence by being able to demonstrate their abilities in real situations.

Connection: Children with good bonds (secure attachment) to friends, family, and community groups are likely to have a stronger sense of security and belonging. Such children are more likely to have strong values and are less likely to seek out alternative destructive behaviors.

Character: Children with "character" have a strong sense of self-worth and self-confidence. They are in touch with their values and comfortably adhere to them. They may show a caring attitude towards others, have a strong sense of right and wrong, and are prepared to make wise decisions and contribute to the world.

Contribution: Experiencing personal contribution to the community or world teaches children that the world is a better place because they are useful in it.

Coping: Children with a wide repertoire of coping skills (social skills, stress regulation skills) can deal more effectively with stress and are better prepared to overcome life's challenges.

Control: When children can make their own decisions and act on them, they gain self-confidence and are more likely to learn how to make effective decisions and adapt when necessary.

These elements form the foundation for building resilience in children, allowing them to navigate through life's challenges with a sense of empowerment and well-being.

7. Critical Discussion and Suggestions

In education, many psychologists working in schools must come up with a diagnosis to justify providing professional support to a child. This "toxic reality" leads to labeling the child,

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despite the label being meaningless. Similarly, pediatricians, psychiatrists, and other physicians conducting clinical work cannot get paid unless they assign a specific diagnosis to the client. The system has created an alliance between the economic model and practice. Accordingly, the term "neurodiversity" has become popular. However, this concept supports the idea that people can exist in different ways in this world, have various talents, and that the problem's cause is not in the person but in how society views them. The concept of ACEs operates as systems with their own rules of operation and are very resistant to change like other systems. Working with children who have experienced adverse experiences, a better predictor of their difficulties might be how they were connected with family, friends, community, and culture on their journey to the present rather than their ACE score. If they experienced adverse circumstances in the family and early childhood, they might have absorbed some toxicity but also might have had various ways to face, resist, and overcome without fundamental impacts on their lives and health.

Healthcare providers should be trained in ACE screening as part of undergraduate education and professional training in clinical settings. Healthcare workers have limited capacity to incorporate new practices without additional support. These barriers are generalizable due to the shortage of healthcare workers and doctors, but healthcare providers recognize the importance of asking about ACEs because it helps to highlight problems that are otherwise unknown and unaddressed, for example, in pregnant women. Awareness of ACEs facilitates healthcare providers to support patients in new ways. Appropriate educational resources, training, and referral procedures would need to be created. Healthcare providers would need to be convinced of the importance of such screening. The results of ACE screening would be crucial to broadly disseminate in training for healthcare providers in trauma-informed care. Furthermore, it would be necessary to integrate support services with healthcare providers who experience psychosocial adversity resulting from trauma. ACEs are strongly associated with severe morbidity during pregnancy, around childbirth, and postpartum. Unlike other risk factors and health problems, such as partner violence, mental illness, and substance use, which are commonly screened for in pregnancy, ACE screening has not yet been widely adopted in prenatal services[36].

[36] Tran N, Callaway L, Shen S, Biswas T, Scott JG, Boyle F, Mamun A. Screening for adverse childhood experiences in antenatal care settings: A scoping review. Aust N Z J Obstet Gynaecol. 2022 Oct;62(5):626-634. doi: 10.1111/ajo.13585. Epub 2022 Jul 31. PMID: 35909247; PMCID: PMC9796324.

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Annex:

ACE Questionnaire – A Screening Tool

The ACE (Adverse Childhood Experience) questionnaire identifies ten childhood experiences before the age of 18. For each question answered affirmatively, one point is assigned, and the total sum represents the ACE score.

The ACE questionnaire focuses on these ten childhood events as they have been found to be the most common traumatic experiences in childhood. Of course, there are other types of childhood traumas besides these ten areas. If a client has experienced other types of toxic stress over months or years, it is likely that these will also increase the risk of negative health outcomes. It's also important to note that the overall score is what matters, not individual questions, as each type of adverse experience has been shown to have an equal impact. Neuroscience indicates that there are two mechanisms by which adverse childhood experiences translate into biomedical disease: A chronic stress reaction that leads to increased allostatic load, negatively affecting health and well-being, even without the presence of health-risk behaviors. In addition to the above, a history of ACEs is associated with a range of other negative health and social problems.

The five ACE areas are personal:

1. Verbal abuse
2. Physical abuse
3. Sexual abuse
4. Physical neglect
5. Emotional neglect

The five ACE areas are related to family members and the home environment:

1. caregiver who has problematic substance use
2. incarcerated family member
3. a family member with a diagnosis of mental illness
4. a history of domestic violence in the home
5. loss of a caregiver due to divorce, death or family abandonment

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Screening questionnaire [37]

Negative childhood experiences - Circle the appropriate answer

Initials.....

Year of birth..... Gender.....

When you were growing up during the first 18 years of your life:

1. Did it happen that a parent or other adult was often or very often in your home/household.... scolded, attacked, put you down, or humiliated you? Or acted in a way that caused you to fear that you might be physically hurt?

YES x NO

2. Has a parent or other adult ever been in your home/household often or very often.... pushed you, grabbed you, slapped you or threw something at you? Or hit you so hard that you could see signs of assault or injury?

YES x NO

3. Did the person at least 5 years older than you ever touch or caress (stroke) you or touch his/her body in a sexual way? Or attempted or even had oral, anal or sexual intercourse with you?

YES x NO

4. Did you often or very often feel that no one in your family loved you or thought you were not important or special? Or did you not care for each other, seek each other out, feel close to others, or support each other?

YES x NO

5. Have you often or very often felt that you did not have enough food, had to wear dirty clothes and had no one to protect you? Or were your parents too drunk or high to take care of you or take you to the doctor if necessary?

YES x NO

6. Were your parents separated or divorced?

YES x NO

7. Did your mother or stepmother get pushed, grabbed, slapped, or thrown at often or very often? Or was she ever, often or very often kicked, bitten, hit with a fist or something hard? Or has she ever been repeatedly beaten for at least a few minutes or threatened with a gun or knife?

YES x NO

8. Have you lived with someone who was a problem drinker or alcoholic or who used street drugs?

YES x NO

[37] chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.rockefellerfoundation.org/wp-content/uploads/2021/03/ACE-Questionnaire.pdf

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9. Did any member of your household suffer from depression or mental illness or attempt suicide?

YES x NO

10. Has any member of your household been in prison?

YES x NO

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