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Thematic Article

Purpose of International Questionnaire Adverse Childhood Experiences to Identify Psychotraumatic Factors in Childhood and Adolescence

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Abstract

Data on long-term clinical consequences in the field of mental health associated with child abuse are presented. The definitions of the main forms of abuse in childhood are given and the basic psychometric techniques for adult retrospective assessment of prevalence, severity and combination of psychotraumatic childhood events are reviewed.

Keywords: *Child Abuse; Child Neglect; Adverse Childhood Experience; Questionnaire*

Introduction

Child abuse is a complex social phenomenon, individual aspects of which are studied by various sciences (sociology, psychology, medicine, criminal and family law). In 1999, the World Health Organization has published a definition of child abuse, identifying it with the notion of maltreatment in childhood [2]. According to this definition, a scientific terminology has been developed, which describes four main types of child abuse: neglect, physical abuse, sexual abuse and emotional, or psychological abuse.

Neglect is the inability to meet the basic needs of a child. Neglect can be physical, educational, medical, or emotional.

Physical neglect is the most common form of neglect, manifested in the inability to meet the basic needs of a child in food, shelter and clothing not associated with a lack of financial resources. Physical neglect also includes insufficient parental control, child abandonment, expulsion from home, and abandonment of the escapee who wants to return home.

Pedagogical neglect is the second most frequent form of neglect and it includes the inability to organize adequate schooling for a child in high school, as well the inability to enroll a child in school or connivance to chronic absenteeism, and the lack of education for children with special educational needs.

Medical neglect includes the refusal, non-fulfillment or delay in the implementation of necessary medical care (both of a preventive plan and an emergency).

Emotional neglect, which, like emotional abuse, is difficult to prove, includes noticeable inattention to the child's need for love, refusal or failure to provide the necessary psychological support, or chronic (for example, beating the mother) or extreme (killing) marital violence in the presence of a child.

Physical abuse can range from minor bruises to killing a child and can be one-time or systematic. Physical abuse includes punishment that does not match the child's age, his physical development, health, intellectual or emotional state. Regular disciplinary measures do not require medical treatment, they leave no physical marks, such as scars and bruises. Severe forms of physical abuse include: beating of a

child (punches or kicks of the body or head), burning, threat with a knife or a firearm. Moderate forms include: punches to the buttocks, cuffs, slaps, pulling out or cutting hair patches, shaking, dousing with cold water, threatening with sweeping a fist or heavy object, painful pinching, twisting the ear, requirements for a child to kneel or for a long time to stand in an uncomfortable position, forcing to put hot pepper, salt, baking soda into the mouth [2].

Sexual abuse involves a range of behaviors used by adults for sexual arousal or satisfaction: tactile forms of oral-genital, genital or anal contacts with a child (for example, caressing the child's genitals), or non-touching forms (for example, exhibitionism, voyeurism), as well as sexual congress (for example, sexual intercourse, rape, uranism) and commercial exploitation of children through prostitution or the production of pornographic products. The sexual needs of an abusive person can be contented without the use of physical or mental abuse of children. An adult, based on the age ignorance of a child and the lack of a conscious understanding of the meaning and nature of the actions performed, can achieve his ignoble purposes in another ways (for example: using persuasion, promises, giving gifts, etc.) [1].

Emotional abuse includes the refusal of adults to provide adequate psychological support for children and the creation of an unfavorable emotional environment that causes or can cause serious behavioral, cognitive, emotional, or mental disorders. This form can be manifested by verbal actions aimed at the emotional health and child development: bans on actions, on child movement, blackening, ridicule, threats, humiliation, discrimination, rejection and other non-physical forms of hostile treatment. Emotional abuse often coexists with other forms of abuse. The consequences of such violence for a long time can proceed covertly, manifesting in adulthood a tendency to repeat unfavorable experiences and a predisposition to get into adverse situations (victimization) [5].

There is a relationship between the consequences of cruel treatment and the age [27]. The period of infancy and early childhood is the most vulnerable period for the occurrence of severe consequences of cruel treatment, ranging from impaired neurobiological development and brain maturation to death.

The main form of physical abuse during this period are knocks on the head and body, accompanied by head injuries, injuries of internal organs, fractures; excessively vigorous shaking of the limbs or shoulders causing hidden intracranial or intraocular bleeding without signs of external injuries ("battered child syndrome") [30].

The consequences of neglect or unconscientious care are just as dramatic. Noncompliance with care forms leads to a violation of the diet, regular sleep, which are manifested by a significant lag in physical development, manifestations of deprivation dwarfism. The consequences of emotional neglect are manifested by behavioral signs of mental retardation: absence of smile, absence of mimic expression, presence of disgust expression in eyes, use of self-stimulating actions, intolerance to changes in the familiar environment, low level of activity.

Children of preschool and early school age who have been mistreated suffer from intellectual and speech developmental disorders without signs of neurological disorders [29]. However, in other studies, no differences were found in intellectual and cognitive functioning, language skills, or verbal abilities. Cognitive deficits are probably caused by the influence of physical abuse on the ability to process social information, the altered results of which lead to chronic aggressive behavior, a tendency to search for social provocations [15]. In particular, studies of electrical potentials of the brain of children with psycho-traumatic experiences show patterns of nervous activation during the performance of tasks requiring executive functions similar to the observed patterns of children with attention deficit hyperactivity disorder (ADHD) [3].

The first attempts of suicides and self-harm among children who have suffered abuse, appear at the age of 7 - 12 years [16].

Also, children of this age show elevated levels of depression, hopelessness, and low self-esteem. This age is vulnerable to the effects of emotional violence factors: bullying, terrorizing and intimidating of a child (for example, permanently understatement of a child or destroying a favorite object).

With the beginning of puberty, the risks of sexual abuse increase, gaining their maximum severity in adolescence. The rate of sexual abuse is 1.5 - 3 times higher among girls than boys [33].

Abuse, especially sexual, at this age can lead to escapes from home. Sexual abuse also contributes to the manifestation of depressive and schizophrenic disorders and initiates suicidal acts of up to a third of affected adolescents [8].

Abuse victims may be more vulnerable to sexual promiscuity and risk of teenage pregnancy [13]. For adults, child abuse is the cause of psychological disorders (helplessness, low self-esteem, guilt, shame), behavioral and emotional disorders: anxiety, depression, suicidal behavior, post-traumatic stress disorders, narcological diseases, difficulties in close or intimate relationships, dissociative (traumatic) amnesia, multiple personality disorder, borderline personality disorder, antisocial personality disorder, somatization and other medical problems, compulsive and promiscuous sexual activity, overeating [27]. In general, there are three scientific models that explain the relationship between the effects of childhood experiences and the health of adults [32,36]. Biological theory confirms that early adversity and psychotrauma cause systemic neuroendocrine dysregulation of the pituitary-hypothalamic-adrenal, limbic systems, disrupts the functions of the reticular formation and interpolar interaction in the cerebral cortex leading to persistent morphological changes. Psychological theory believes that early painful experiences form persistent distress and a steady state of allostasis as the needs of physiological harm, attributing to it psychosomatic diseases. There is also a behavioral theory that unites the all the previous ones, and positions that biological and psychological dysregulation leads to the formation of health-threatening behavior, relieving distress and emotional stress, and thus performing an adaptive function in the short term.

In a scientific review published in "Lancet" in 2017 [21], the authors report that there are a total of 11,621 publications reflecting the results of studies of the prevalence and consequences of adverse childhood experience, of which 2,334 have the size of full-fledged scientific articles. On the basis of the materials of 37 articles used eventually, the authors (Table 1) provide a summary of 253,719 research participants in the USA, UK, Finland, Canada, China, New Zealand, the Philippines, Saudi Arabia, Europe countries - Albania, Latvia, and Lithuania, Macedonia, Russia, Romania, Turkey, Montenegro.

Manifestations of long-term effects	Abs. q-ty of people
Smoking	152,830
Cardiovascular diseases	123,663
Depressions	104,672
Consequences of severe alcohol abuse	84,904
Problems associated with overweight	84,840
Respiratory diseases	72,050
Drug abuse with severe consequences	42,816
Problems with domestic alcohol abuse	33,992
Early sexual activity	38,259
Anxiety	38,092
Use of drugs on the situation, without the formation of dependence	30,101
Partner abuse	27,935
Abuse from others	25,119
Suicidal thoughts, trends, attempts	24,858
Reduced level of life satisfaction	17,675
Total	253,719

Table 1: *Prevalence of long-term effects of adverse childhood experience.*

Diagnosis of psychological trauma of childhood

To identify cases and assess the intensity of cruel treatment and neglect in childhood, a number of tools have been developed for use in the adult period of life. One of the most widely used tools is Childhood Trauma Questionnaire (CTQ), developed by Bernstein D.P. with co-authors (1997) [9]. This method has undergone significant psychometric testing both in clinical and general populations. The original CTQ contained 70 questions. However, it was later reduced to the 28-element short form (CTQ-SF), which was also psychometrically confirmed.

Comparable by the number of studies aimed at determining the psychometric significance, integrity and reliability of the results, is the Childhood Experience of Care and Abuse questionnaire (CECA-Q Bifulco A., Brown G.W. 1994) [11,12]. The questionnaire includes sections on the loss of parents (death, separation for 1 year or more due to relocation and permanent residence of parents elsewhere when child is under 17), assessment of parental care and psychological, physical and sexual abuse from parents.

Maltreatment and Abuse Chronology of Exposure (MACE) (2015) [31] was specifically created to conduct studies on the relationship of type and exposure duration. A feature of MACE and the main reason for its development is potential ability of the tool to identify childhood periods, during which factors exposure of cruel treatment occurred.

Adverse childhood experience - International questionnaire and its modifications

In the 80s of the 20th century, Vincent Felitti, director of Kaiser Center for Control and Prevention of Diseases (San Diego, USA) (hereinafter Kaiser Center) drew attention to the high refusal (about 50%) of further participation in the program of precisely those clients who successfully lost weight. During a tactful and detailed interview (n - 286) with participants who left the program, it was revealed that patients unconsciously use obesity as a form of protection against unwanted sexual attention or as a shield from physical violence. Also, these patients were characterized by a high prevalence of memories of sexual or physical abuse in childhood. Due to the inherent to that time social ban on the discussion of child sexual abuse or child suicide, it was unexpected and required high-quality studies. The study of V Felitti and R Anda was the first that broke the social and psychological taboo on the possibility of frank talk about abuse, neglect or violations of family relationships in childhood, both from adult patients and doctors [4]. To confirm the hypothesis about the interconnections of child psycho-traumatic events and the health of adult, a Questionnaire for Adversive Childhood Exposure (ACE) was developed. The studying method of adversive childhood exposure combined several groups of factors: physical abuse (PA), emotional abuse (EA), sexual abuse (SA), emotional neglect (EN), physical neglect (PN), serious violations of family relationships (SVFR): partner abuse against mother or siblings (PAMS), mental disorders of family members (MDFM), use of psychoactive substances by family members (UPASFM), divorce or separation from parents (DSP), parents imprisonment (PI), which differed from previous studies focused on certain types of cruel treatment, mainly sexual abuse and related psychopathological disorders [7]. Subsequently, the proposed method for assessing the adverse childhood exposure allowed researchers to structure the whole range of difficult and painful experiences associated with childhood, and to identify three main groups of harmful factors: abuse, neglect, intrafamily dysfunction, in general, highlighting the Adversive Childhood Experience (ACE) as the term describes all the above mentioned [16-18]. The results were unprecedented. Of the 26,000 regular clients of Kaiser Center, 17,337 people who applied for a comprehensive medical examination, had the experience of painful childhood exposure and were brought up in violence (EA - 10%, PA - 26%, SA - 21%) and neglect (EN - 15%, PN - 10%), or in conditions of serious violations of family relations (PAMS - 13%, MDFM - 20%, DSP - 24%, PI - 6%) [10].

The research group found out also that these stressful factors coexisted in the daily life of a child. A simple system for Adversive Childhood Exposure score (ACE score) was used, summarizing each score for a specified traumatic circumstance. The results showed that only 33% did not indicate adverse childhood exposure, one event was indicated at 25%, from 2 to 4 - at 25%, 17% of respondents recalled 4 or more cases of psychotrauma [18].

An array of studies that took the federal form in the United States, and later - international form (WHO Adversive Childhood Experience Study), revealed proven interrelationships between ACE and cancer, cardiovascular diseases, chronic obstructive pulmonary diseases, chronic diseases of the gastrointestinal tract (erosive gastritis, ulcerative colitis), neurological disorders of the musculoskeletal system [10,28]. Further research found that an increase in scores of ACE-score increases the chances of smoking by 2 times, alcohol by 7, intravenous drug use by 10 times, attempts to commit suicides by 12 times [16,17].

In the United States, there are more than 10 modifications of the adverse child exposure questionnaires developed on the basis of the original questionnaire of adverse childhood exposure developed by Felitti and Anda for Kaiser Center for Disease Control and Prevention. Table 2 provides a comparative description of three methods that are most widely used to detect events of cruel treatment, neglect, violations of family relationships in childhood [10].

Method name	Study purpose (SP) Target audience (TA) Data sources (DS)	Questionnaire design ACE types	Assessment and results presentation	Development and testing	Additional information
Original Questionnaire of Adverse Childhood Experience Adverse Childhood Experience (ACE), developed by the American Medical Prevention Center "Kaiser Permanente" (*National Center for Injury Prevention and Control,* 1995)	SP: screening; TA: adults; DS: self-reports.	28 questions, 10 groups in accordance with the ACE types: PA, EA, SA, EN, PN, UPASFM, MDFM, PAMS, DSP, PI.	Total index (TI): 0-10 points; groups: 0, 2-3, > 4	Developed on the basis of: Conflict Tactics Scale; Childhood Trauma Questionnaire; Questionnaire of sexual abuse consequences in childhood by White Wyatt	Demographic characteristics, life history, associated conditions and disorders.
WHO ACE-International Questionnaire, was developed by WHO and Kaiser Center 200	SP: Dissemination and planning of programs for international comparison of the prevalence of adverse childhood experiences TA: adults; DS: self-reports.	28 questions, 10 groups in accordance with the ACE types: PA, EA, SA, EN, PN, UPASFM, MDFM, PAMS, DSP, PI.	TI 0-13 points	BRFSS Modification, added questions for international use. Tested in 6 countries, currently undergoing reliability and validation checks.	Demographic characteristics, life history, associated conditions and disorders.
Behavioral risk factor surveillance survey at the state level Behavioral Risk Factor Surveillance Survey (BRFSS)	SP: review of government policy measures to counter the spread of risk behavior. TA: adults; DS: self-reports.	11 questions, 8 groups PA, EA, SA, UPASFM, MDFM, PAMS, DSP, PI	TI: 0, 1, 2, 3, 4, >5	Modification of the original ACE Questionnaire based on the results of factor analysis	Demographic characteristics, life history, associated conditions and disorders.

Table 2: *Comparative characteristics of methods for assessing adverse childhood exposure.*

Thus, Adverse Childhood Experience - International Questionnaire WHO ACE-IQ is a modified version of the original ACE questionnaire developed in 1995 in Kaiser Center. In addition to the main 10 factors of ACE, the International Questionnaire added 3 groups of factors determining violence emanating from a group of individuals - at the micro-social level, bullying by peers (bullying B), evidence of violence in the microgroup (collective violence CV), and at the public level, including wars, political, ethnic conflicts, violent actions of organized criminal groups - social violence (SV) [34].

Adverse Childhood Experience - International Questionnaire WHO ACE-IQ is presented by the following structure (Appendix). Questions to respondents have their own number and are encoded in 6 groups: 1) demographic (personal) information (code C - Core question); 2) real family (code M - Marriage question); 3) relationship with parents/guardians (code P - parents/guardian question); 4) problems of the family environment (code F - Family question); 5) abuse of the childhood period of life (code A - Abuse question); 6) violence (use of additional force) (code V - Violence). According to the developers, the questionnaire design involves the cross-distribution of questions into 13 categories that are directly related to adverse childhood exposure: physical abuse (A3, A4); emotional abuse (A1, A2); sexual abuse (A5, A6, A7, A8); use of psychoactive substances by parents and guardians (F1); criminal behavior of parents and guardians (F3); chronic mental illness, depression, suicides of parents/guardians (F2); partner family/domestic violence (F6, F7, F8); divorce, separation, death of parents (F4, F5); emotional neglect (P1, P2); physical neglect/neglect of basic needs (P3, P4, P5); bullying, mockery by peers (V1, V2, V3,); collective abuse (V4, V5, V6); social abuse (V7, V8, V9, V10). The preamble formulated the request "When you were under 18 years old...". In the study, the frequency approach is used to account for specified ACE categories (many times - 1 point, several times - 2 points, once - 3 points, never - 4 points); questions that reflect family environment problems (F1-F5) suggest the answer "yes" - 1 point, the answer "no" - 2 points, for the questions of the category "Emotional neglect" (P1, P2) a 5-point scale with the inverse value was applied.

The International Questionnaire for Adverse Childhood Experience is recognized as an effective tool for studying the potential prevalence of standardized factors of adverse childhood exposure. As part of the work carried out by WHO to validate the WHO ACE IQ, there is an accumulation of scientific data on the similarities and differences in the results of the study of the psychometric properties of ACE IQ dictated by ethno-cultural, social, economic norms in different countries [6,7,14,20,23-26,36]. A lot of studies has confirmed the good validity of the WHO ACE IQ content, reliable internal consistency, satisfactory test-retest reliability and semantic equivalence. According to this, all key elements of the WHO ACE IQ are very important and make the information obtained using the international ACE Questionnaire discrete and independent, despite the fact that a number of factors are considered [20].

In 2014 in study [19] conducted using a modification of the original Kaiser ACE model, the authors propose a 3-factor model of the questionnaire, including factors: "Household dysfunction", "Physical/emotional abuse", "Sexual abuse". The study of inter-factor correlation allows the authors to conclude about the connection of all 3 factors in the directions: "Household Dysfunction - Sexual Abuse"; "Sexual Abuse - Physical/Emotional Abuse" and assume the presence of an additional factor of higher-order ACE. Also, according to the researchers [35], high sensitivity and informativeness with regard to identifying ACE episodes, factors of physical, sexual, emotional abuse, due to their particular, intrusive, importance for respondents, determined by painful immersion in memories and fear of the alleged consequences of disclosure, makes these questions of the questionnaire undesirable for inclusion in rapid ACE screening tools. In this regard, the authors propose a 2-position model of ACE Questionnaire, consisting of the factor "use psychoactive substances by family members" and the factor "Emotional abuse". The validity of this model was confirmed by the results of regression analysis, which demonstrated equivalent health outcomes of patients whose ACE was detected using the original and two-dimensional models.

In a later study in 2018 [22], an extended assessment of adverse childhood exposure was used, combining the original WHO ACE IQ elements with elements of the adolescent victimization questionnaire. As a result, the model with 4 interrelated factors was proposed: "Cruel treatment", "Household dysfunction", "Community dysfunction", "Peer dysfunction". The model showed the reliability of test-retesting, convergent and prognostic validity, and according to the researchers, it is possible to assess the cumulative traumatic impact

of early experience of victimization and helplessness in the face of deliberate emotional or physical threats or actual harm from others.

Conclusion

The identifying of the reliability and validity of the International Questionnaire for Adverse Childhood Exposure (WHO ACE IQ) is currently the focus of WHO's efforts to internationally distribute the Questionnaire to study child abuse in the world and to develop countermeasures. The use of the International Questionnaire of Adverse Childhood Exposure (WHO ACE IQ) in our work was authorized by Professor Alexander Butchart, MA, PhD, International Coordinator of the Prevention Violence Team (PVL) of WHO, and Professor, Doctor of Medicine M. A. Kachaeva, the national coordinator of this project in the Russian Federation

Adverse childhood exposure, including emotional abuse, psychoactive substance abuse in the family, separation or divorce of parents, physical abuse, violence between adults, mental illness in the family, sexual abuse or imprisonment of a family member, can have a profound effect on health and well-being in adulthood. A significant amount of scientific data that determines the strong relationship between child psychotrauma and the risk of illness in adulthood, generates interest in identifying adverse childhood exposure. To support the further development of psycho-preventive measures aimed at overcoming children's adversity, effective approaches will be required to identify experienced childhood traumatic events. Using the International Questionnaire for Adverse Childhood Exposure (WHO ACE IQ) meets these needs.

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