PUBLIC HEALTH AND MANAGEMENT

ACTA MEDICA TRANSILVANICA December 27(4):1-4 Online ISSN 2285-7079





CHILDREN OF THE WAR

IOANA MĂTĂCUŢĂ-BOGDAN¹

¹ "Lucian Blaga" University of Sibiu

Keywords: armed conflict, war, children

Abstract: War is one of the great tragedies of humanity, being at the same time the generator of deep crises. For children, the impact of the war is all the more profound as they are in a period of deep growth and development. The effects are devastating and most diverse, from the lack of immunizations and infectious diseases to physical trauma and mutilation, congenital malformations, cancer, psychological effects, and lasting sequelae. Some of these are irreversible.

INTRODUCTION

Armed conflicts and especially war bring immeasurable suffering to all people involved. When it comes to children the tragedy is even greater given the fact that they are innocent victims. Their suffering takes many forms, from acute injuries to long-lasting psychological trauma. And probably more consequences will emerge.

Every year since 1990, between 40 and 68 countries were involved in armed conflicts.(1) It is estimated that almost 250 million children live in areas affected by conflicts.(2)

According to the annual report on Children and Armed Conflict (CAAC), released in 2021, almost 24000 children were victims of military conflicts. Most of the children, especially boys, suffered terrible violations, 1600 of them being victims of multiple violations. Over 8000 children were killed or mutilated.(3)

The most terrible year for the children touched by military conflicts was 2018 when in 20 situations monitored, more than 12.000 children lost their lives or were mutilated. Almost 1000 of them experienced sexual violence, and a lot of them were abducted or forced into frontline fighting.(4)

The most vulnerable regions were Afghanistan, the Democratic Republic of the Congo (DRC), Israel, and the Occupied Palestinian Territory.(3)

The definition of armed conflict is not fully established and there is no consensus in international law.

According to Uppsala Conflict Data and Peace Research

According to Uppsala Conflict Data and Peace Research Institute Oslo, the armed conflicts are defined as follows:

- State-based armed conflict "is a contested incompatibility that concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths in one calendar year".
- Non-state armed conflict —"the use of armed force between two organised armed groups, neither of which is the government of a state, which results in at least 25 battlerelated deaths in a year".
- One-sided violence —"use of armed force by a government of a state or by a formally organised group against civilians which results in at least 25 deaths in a year". Formally

organised group refers to "any non-governmental group of people having announced a name for their group and using armed force".

Based on the intensity of the armed conflict we can distinguish minor armed conflict and war.

- Minor armed conflict "At least 25 but less than 1000 battle-related deaths in one calendar year."
- War "At least 1000 battle-related deaths in one calendar year."

Children living in conflict-affected areas and conflict-affected children – represent "the children that reside within conflict zones" (a distance of 50km or less from where the fighting takes place in a given year).(2,5,6)

Effects of armed conflicts on children

Children are extremely vulnerable to changes, crises, political changes, disasters, and conflicts. Armed conflicts affect both children from the areas involved but also the children of military personnel participating in the conflict.(6)

The effects of armed conflicts on all categories of children are very diverse and complex.

Conflicts exacerbate political and social instability, are responsible for low access to health facilities and food supplies, and generate poverty. (1,7)

Children living in conflict-affected areas are affected both directly and indirectly. The direct effects include physical injury (penetrating injuries, blunt trauma, crush injuries, burns), illness, psychological trauma, developmental delay, behavioural health sequelae, disability, and death. Indirect but long-term effects on children might be social, political, environmental, economic, and sanitary factors. The destruction of infrastructure can have as a result killing and maiming children or making it impossible to treat affected children.(2,8)

1. Mortality

The children's health begins pre-birth, so we must take into consideration the mother-child couple and the effects that armed conflict might have on it.

Maternal and child mortality is still very high. Almost 50.000 children were born outside health facilities every year due to armed conflicts in Sub-Saharan Africa, and 295.000 maternal deaths were reported in 2017 due to armed conflicts,

Article received on 10.10.2022 and accepted for publication on 20.12.2022

¹Corresponding author: Ioana Mătăcuță-Bogdan, Str. Lucian Blaga Nr. 2A, Sibiu, România, E-mail: ioana.matacutabogdan@ulbsibiu.ro, Phone: +40740 024274

PUBLIC HEALTH AND MANAGEMENT

these conflicts are responsible for the increase in mortality among women of childbearing by 21%.(1,7)

After the outbreak of a conflict, a three times increase in mortality involving infants and children was reported especially by physical injuries. The mortality was higher among the children with displaced families.(2,9,10)

In a study from 2019, Jawad et al analysed data from 181 countries in a period of 20 years (2000-2019). These analyses showed that in conflict-affected areas the mean maternal mortality is double when compared to conflict-free countries, 396.3 vs. 169.3/100,000 live births for wars and 22.5/100,000 live births for conflicts. Even more, maternal mortality was increasing "for up to 7 years after the onset of the war".(7)

Neonatal and infant mortality – were almost two times higher in conflict-affected countries when compared to conflict-free ones. The highest rates were recorded in war zones and appear to be a dose-response. The infant mortality rates were higher for 8 years after the onset of the war.(7)

Congenital malformations, birth asphyxia, respiratory distress syndrome, and intracranial hemorrage are the main causes responsible for perinatal mortality.(2,11)

2. Preterm birth and congenital disease

- **Preterm births and low-birth-weight** children were more prevalent in wartime compared to the pre-war period, the average birth weight being 200-300 g lower (2,12) and the caesarian section was performed more often during the conflict.(2,13) The refugee women had an increased risk of preterm delivery that continued for 3 to 5 years After the onset of the war.(2,14)
- Congenital heart disease the annual incidence of congenital heart disease was 3 times higher in the post-war period when compared with the pre-war as shown in the study of Abushaban et al on the survivors of Kuwait war.(2,15) There was an increased prevalence of tricuspid insufficiency and aortic stenosis in infants conceived by veterans of the Gulf War.(2,16)

3. Physical injuries

Penetrating injuries, especially head injuries are the most frequent, respectively 60-75%. In a study from 2012, Borgman et al. showed that 79% of the pediatric admissions were due to trauma which led to a longer hospital stays and higher mortality. Most of the physical injuries were penetrating injuries, blunt injuries and burns. The mortality due to these injuries was higher for children under 8 years of age.(2,17)

The frequency of *injuries due to landmine* varies widely, from 26% to 55%, most of them affecting children.(2,18). There was an increase of 3.2 in *ocular trauma* due to armed conflict (2), and 20% of the patients with *maxillofacial injuries* were under 15 years of age.(2,19) The *peripheral nerve injuries* in children affected by war usually involved multiple nerves, were complete or severe and were localized to upper extremities.(2) *Burns* affect children in conflict areas and they have higher mortality compared to conflict-free areas.(2,17)

4. Infectious disease

Infectious disease and armed conflicts potentiate each other. War-affected regions are more susceptible to infectious disease outbreaks due to a reduced capacity for preventing, controlling, and treating these infections. The crowded conditions which promote the spreading of infections, and the reduced access to clean water, medical supplies, and medical facilities contribute to a high prevalence of the infectious disease.

In the areas where armed conflicts occur a higher prevalence of acute *respiratory infections*, *diarrhea* (including cholera), *malaria* and fever were reported.(2,20,21)

Active tuberculosis emerges in times of crisis,

incidence and prevalence reported were twofold higher.

Infections with *hepatitis viruses* (HVA, HVB, HVE) became hyperendemic. Hepatitis B outbreaks affect mostly children, especially in the context of low vaccination coverage.(2,21) Hepatitis E exposure is associated especially with refugee camps in South Sudan and Ethiopia which has been reported at 89% in Iraq.(2) For pregnant women, hepatitis E is particularly dangerous and brings a high mortality rate.(21)

Rape and sexual violence, common in armed conflicts determined a high prevalence of *HIV* infection.(21)

The SARS-CoV-2 pandemic is responsible for almost 600 million illnesses worldwide and almost 7 million deaths. The recent events affecting Europe, the Russia- Ukraine war has its costs regarding SARS-COV-2 infection. According to the World Health Organisation, "Ukraine was one of the most affected European countries, surpassing 5 million cumulative cases toward the end of April 2022."(22.23,24)

5. Immunization

Immunization coverage was drastically reduced by the outbreak of armed conflicts. In 2015, less than half of the children (41%) were vaccinated for *VPD* (diphtheria, pertussis, and tetanus) in The Syrian Arab Republic and only 1 in 5 children in Ukraine (compared to 4 in 5 children in 2012). It was estimated that of 20 million eligible children for VPD vaccination, 66% lived in conflict zones, six countries had less than 50% third-dose coverage and globally there was 14% VPD vaccination coverage. Wars induced reduced coverage of VPD vaccination for 3 years after the onset of the war.(7,25)

Polio immunization led to the eradication of polio in 1988 but there are some countries such as Afghanistan, Nigeria, and Pakistan where the disease is considered endemic due to armed conflicts. Global Polio Eradication Initiative reports that "these 3 countries have been responsible for virtually all polio cases worldwide, including cases reported in previously poliofree countries".(25)

The **measles** immunization coverage is lower by 13% in conflict-affected countries and continues to be reduced 2 years after the onset of the war.(7) In Bosnia, the **rubella-measles** vaccination coverage was lower in the wartime compared to the pre-war period (56% compared to 93%).(2,26)

6. Growth and mental development

The risk of *growth failure, wasting, stunting, and developmental delay* is higher for children from conflict areas.(27) The resident children have failure to thrive earlier and are more resistant to treatment than the displaced children.(2,28,29)

These children often face future delayed linguistic development and poor school achievement.(27) Pesonen et al demonstrated in a study about World War II published in 2011, that the boys separated even temporarily from their families had lower intelligence scores.(2,30)

7. Mental health

Both adults and children facing war are more likely to develop mental disorders. Over 30 percent of the children exposed to armed conflicts experience *post-traumatic stress disorder* (PTSD) and *depression*.(31,32)

Sleep disturbances, nightmares, delayed sleep onset, or night awakenings are reported in children in armed-conflict areas.(2,33) They are more likely to commit suicide (2,34), drink alcohol, and use drugs.(2,35)

8. Child soldiers

Child soldiers are children associated with armed groups. In the majority of cases, they were abducted, the average abduction age being 10.5 years.(2,36) These children are victims of severe human rights violations. They are exposed to extreme physical, psychological, and sexual violence, sexually transmitted infections, injury, and death. One out of 5 children

PUBLIC HEALTH AND MANAGEMENT

had been tortured, one out of 4 children admit to having killed another person, and one out of 3 girls was raped during the armed conflict. Children describe witnessing violence, drug use, dehumanization, harassment, and imprisonment.(2,8,37,38,39)

9. Cancer

Recent evidence shows that individuals involved in armed conflicts are more likely to develop different forms of cancer. The evidence is more obvious for adults than for children. High prevalence of breast cancer after the war in Yugoslavia and gastric and testicular cancer after the war in Croatia.(40) For children under 14 years of age of Fallujah was reported a risk ratio of 12.6 for *childhood cancer*.(2,41) A substantial rise of the average annual incidence of *leukaemia* for children under 14 years of age was noted in Iraq. Many factors contribute to the development of leukemia, therefore we can only speculate upon a possible cause. Infections, chemical agents used as weapons, benzene and pyrophoric-depleted uranium are taken into consideration.(2,42)

CONCLUSIONS

For children living in areas affected by armed conflicts, every day is one at the end of which they may be injured or maimed, kidnapped, raped, or killed. Through its destructive effects, war generates deep wounds and suffering and shapes the lives of these children forever.

REFERENCES

- Wagner Z, Heft-Neal S, Wise PH, Black RE, Burke M, Boerma T, et al. Women and children living in areas of armed conflict in Africa: a geospatial analysis of mortality and orphanhood, Lancet Glob Health. 2019:7:e1622-31.
- Kadir A, Shenoda S, Goldhagen J. Effects of armed conflict of child health and development: A Systematic review, PLoS ONE:14(1):e0210071; 2019.
- Children and armed conflict, Report of the Secretary-General, United Nations General Assembly Security Council, A/76/871-S/2022/493, https://documents-dds-ny.un.org/doc/UNDOC/GEN/N22/344/71/PDF/N2234471. pdf?OpenElement. Accessed on 13.07.2022.
- Report of the Secretary-General on Children and armed conflict, A/73/907–S/2019/509, https://documents-ddsny.un.org/doc/UNDOC/GEN/N19/186/21/PDF/N1918621. pdf?OpenElement. Accessed on 14.08.2022.
- Department of Peace and Conflict Research, UDCP definitions, https://www.pcr.uu.se/research/ucdp/definitions/ Accessed
 - on 13.08.2022. Bahgat K, Dupuy K, Østby G, Rustad SA, Strand H, Wig
- Bahgat K, Dupuy K, Østby G, Rustad SA, Strand H, Wig T. Children and Armed Conflict: What Existing Data Can Tell Us. Peace Research Institute Oslo; 2017.
- Jawad M, Hone T, Vamos EP, Cetorelli V, Millett C, Implications of armed conflict for maternal and child health: A regression analysis of data from 181 countries for 2000-2019, PLoS Med. 2021 Sep 28;18(9):e1003810.
- 8. Shenoda S, Kadir A, Pitterman S, Goldhagen J, et al. The Effects of Armed Conflict on Children. Pediatrics. 2018;142(6):e20182585.
- Ascherio A, Chase R, Coté T, Dehaes G, Hoskins E, Laaouej J, et al. Effect of the Gulf War on Infant and Child Mortality in Iraq, N Engl J Med. 1992;327:931-936.
- Avogo WA, Agadjanian V. Forced migration and child health and mortality in Angola, Social Science and Medicine. 2010;70(1):53-60.
- 11. Radončić F, Hudić I, Balić B, Zlatan Fatušić Z. Perinatal outcomes during 1986–2005 in Tuzla Canton, Bosnia and Herzegovina, The Journal of Maternal-Fetal and Neonatal Medicine. 2008;21(8):567-572.

- Skokić F, Muratović S, Radoja G. Perinatal and Maternal Outcomes in Tuzla Canton during 1992-1995 War in Bosnia and Herzegovina, Croatian Medical Journal. 2006;47(5).
- 13. Bodalal Z, Agnaeber K, Nagelkerke N, Stirling B, Temmerman M, Degomme O. Pregnancy outcomes in Benghazi, Libya, before and during the armed conflict in 2011. East Mediterr Health J. 2014;20(3):175–180.
- 14. Liu C, Urquia M, Cnattingius S, Hjiern A. Migration and preterm birth in war refugees: a Swedish cohort study, European Journal of Epidemiology. 2014;29:141–143.
- Abushaban L. Impact of the Gulf war on congenital heart diseases in Kuwait, February International Journal of Cardiology. 2004;93(2-3):157-62.
- Araneta MRG, Schlangen KM, Edmonds LD, Destiche DA, Merz RD, Hobbs CA. Prevalence of birth defects among infants of Gulf War veterans in Arkansas, Arizona, California, Georgia, Hawaii, and Iowa 1989–1993, Clinical and Molecular Teratology. 2003;67(4):246-260.
- Borgman MA, Matos R, Spinella P. Isolated Pediatric Burn Injury in Iraq and Afghanistan, Pediatric Critical Care Medicine: February 2015;16(2):e23-e27.
- Bilukha OO, Laurenge H, Danee L, Subedi KP, Becknell K. Injuries and deaths due to victim-activated improvised explosive devices, landmines and other explosive remnants of war in Nepal. Inj Prev. 2011;17(5):326–331.
- Gataa IS, Muassa QH. Patterns of maxillofacial injuries caused by terrorist attacks in Iraq: retrospective study, nternational Journal of Oral and Maxillofacial Surgery, Volume. 2011;40(1):65-70.
- Kandala NB, Emina JB, Nzita NB, Cappuccio FP. Diarrhoea, acute respiratory infection, and fever among children in the Democratic Republic of Congo, Social Science and Medicine. 2009;68(9):1728-1736.
- 21. Benavid E, Boerma T, Akseer N, Langer A, Malembaka EB, Okiro EA. The effects of armed conflicts on the health of women and children, Lancet. 2021;397:522-32.
- 22. World Health Organization (WHO). WHO Health Emergency Dashboard: Ukraine. Available online: https://covid19.who.int/ region/euro/country/ua (accessed on 1 June 2022).
- 23. Ludvigsson JF, Loboda A. Systematic review of health and disease in Ukrainian children highlights poor child health and challenges for those treating refugees. Acta Paediatr. 2022. Eearly view. [CrossRef].
- 24. Maggioni A, Gonzales-Zamora JA, Maggioni A, Peek L, McLaughlin SA, Von Both U. Cascading Risks for Preventable Infectious Diseases in Children and Adolescents during the 2022 Invasion of Ukraine, Int. J. Environ. Res. Public Health. 2022;19:7005.
- 25. Nnadi C, Etsano A, Uba B, Chima Ohuabunw C, Melton M, Nganda GW, et al. Approaches to Vaccination Among Populations in Areas of Conflict, J Infect Dis. 2017 Jul 1;216(suppl_1):S368-S372. doi: 10.1093/infdis/jix175.
- Novo A, Huebschen JM, Muller CP, Nnadi C, Etsano A, Uba B, Chima Ohuabunw C, Melton M, Nganda GW, et al. Approaches to Vaccination Among Populations in Areas of Conflict, J Infect Dis. 2017 Jul 1;216(suppl_1):S368-S372. doi: 10.1093/infdis/jix175.
- 27. Jeharsae R, Sangthong R, Wichaidit W, Chongsuvivatwong V. Growth and development of children aged 1–5 years in low-intensity armed conflict areas in Southern Thailand: a community-based survey, Conflict and Health. 2013;7 Article number: 8.
- 28. Aaby P, Gomes J, Fernndes M, Djana Q, Lisse I, Jensen H. Nutritional status and mortality of refugee and resident children in a non-camp setting during conflict: follow up

- study in Guinea-Bissau, BMJ. 1999;319:878.
- Cliff J, Nicala D, Saute F, Givragy R, Azambuja G, Taela A. Konzo associated with war in Mozambique, Tropical Medicine and International Health. 1997:2(11):1068-1074.
- Pesonen AK, Räikkönen K. Mental health of children evacuated during World War II. In H. E. Fitzgerald, K. Puura, M. Tomlinson, & C. Paul (Eds.), International perspectives on children and mental health, Vols. 1 and 2: Development and context, Prevention and treatment; 2011. p. 197–215.
- 31. Catani C. Mental health of children living in war zones: a risk and protection perspective, World Psychiatry. 2018 Feb;17(1):104–105.
- 32. Borba CPC, Ng LC, Stevenson A, Vesga-Lopez O, Harris BL, Parnarouskis L. A mental health needs assessment of children and adolescents in post-conflict Liberia: results from a quantitative key-informant survey, International Journal of Culture and Mental Health. 2016;9(1):56-70.
- 33. Montgomery E, Foldspang A. Traumatic experience and sleep disturbance in refugee children from the Middle East, European Journal of Public Health. 2001;11(1):18–22.
- Mujkic A, Peek-Asa C, Young T, Rodin U. Effect of War on Weapon-Related Deaths in Croatian Children and Youth, Arch Pediatr Adolesc Med. 2008;162(2):140-144.
- 35. Schiff M, Fang L. Adolescent substance use in Israel: The roles of exposure to political traumas and posttraumatic stress symptoms. Psychology of Addictive Behaviors. 2014;28(2):453–463.
- 36. Betancourt TS, Brennan RT, Rubin-Smith J, Fitzmaurice GM, Gilman SE. Sierra Leone's Former Child Soldiers: A Longitudinal Study of Risk, Protective Factors, and Mental Health Journal of the American Academy of Child and Adolescent Psychiatry. 2010;49(6):606-615.
- 37. Denov M. Coping with the trauma of war: Former child soldiers in post-conflict Sierra Leone, International Social Work. 2010;53(6):791–806.
- Geltman PL, Grant-Knight W, Mehta SD, Lloyd-Travaglini C, Lustig S, Landgraf JM. The "Lost Boys of Sudan" Functional and Behavioral Health of Unaccompanied Refugee Minors, Resettled in the United States, Arch Pediatr Adolesc Med. 2005;159:585-591.
- Mann G. Finding a Life' Among Undocumented Congolese Refugee Children in Tanzania, Special Issue: Children, Poverty and Risk: Global Perspectives. 2010;24(4):261-270.
- Caglevic C, Rolfo C, Gli-Bazi I, Cardona A, Sapunar J, Hirsh FR, et al. The Armed Conflict and the Impact on Patients With Cancer in Ukraine: Urgent Considerations, JCO Global Oncology. 2022;8.
- Busby C, Hamdan M, Ariabi E. Cancer, Infant Mortality and Birth Sex-Ratio in Fallujah, Iraq 2005–2009, Int. J. Environ. Res. Public Health. 2010;7(7):2828-2837.
- Hagopian A, Lafta R, Hassan J, Davis S, Mirick D, Takaro T. Perinatal outcomes during 1986–2005 in Tuzla Canton, Bosnia and Herzegovina, American Journal of Public Health (AJPH), Trends in Childhood Leukemia in Basrah, Iraq, 1993–2007; 2010.