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## Scientists Against War: A Plea to World Leaders for Better Governance

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“Now I am become Death, the destroyer of worlds”

- The Bhagavad Gita

The current Russian war against Ukraine is of global concern. It builds on the annexation of Crimea in 2014 and subsequently the war in the Donbas region of Ukraine, and has become a large-scale Russian invasion of Ukraine from three directions, Crimea in the south, Russia in the east, and Belarus in the north. Despite the geopolitical background that, in the eyes of Russia, justifies its annexation of regions in and around Ukraine, we cannot turn a blind eye towards the untold miseries of the citizens of the invaded country. Although it is unclear as to how the situation will unfold, what is clear is that lives are being lost, many civilians are being injured, traumatized, and valuable assets destroyed. Taking into consideration that the population of the countries involved in this conflict totals nearly 200 million citizens, many lives on both sides will be sacrificed, millions of people displaced, Europe will be overrun with new refugees, and global world economics will be disrupted by the war itself and by the sanctions imposed on Russia. The

current global governance mechanisms are likely to be forever changed, with other players with malevolent intentions becoming emboldened to embark on expansionist ventures.

In most war scenarios, the agenda between what the people of a country want and what the government does is often at odds. One thing is certain: if there will be no decisive action from other countries and international organizations cannot stop the Russian invasion, the outcome will be a humanitarian catastrophe while the world watches. The science is unequivocal; the harm that has been occurred in recent wars in Vietnam, Afghanistan, Iraq, Libya, and Syria been fully documented in the literature as well as the earlier conflicts in Vietnam [1]. Hence, the disastrous impacts of war cannot be overlooked. Wars cause high rates of morbidity and mortality [2, 3]. Armed conflicts always result in widespread hardships, loss, trauma, and population displacement [4]. There are casualties on all sides of a war. War leads to agony and death, as well as causing significant socioeconomic upheaval, not only in the countries involved but globally [5, 6]. Physical and mental health of refugees and migrants is likely to be affected and the burden on healthcare systems will increase. As it is, the world is struggling to recover from the COVID-19 pandemic, a war of the

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proportion we see in Ukraine, as well the imposed sanctions on the aggressor, risk increasing the already heavy burdens of global inflation and poverty contributing to poor mental health. Rehabilitation and reconstruction activities will need to continue for decades to help the people of Ukraine to recover, and communities and livelihoods to be restored. Many losses are, of course, unrecoverable. The global economy will take years to re-stabilize.

Looking at wars and invasions through the lens of mental health and well-being, the consequences for both combatants and innocent civilians are always disastrous [7]. Women are thought to be disproportionately affected [8]. Other vulnerable groups are soldiers, the injured, children of all ages, the elderly, the functionally disabled, and the refugees [9]. Physical disability, emotional and psychological distress, post-traumatic stress disorder, anxiety, depression, insomnia, nightmares, alcohol and drug abuse, suicidality, and psychosomatic illnesses are common place among those who live in war-torn areas [10–13]. Although people are generally resilient, the chronicity and amplitude of war's impact eventually outstrips people's capacity to be resilient [14]. Chronic lung diseases are a current growing issue among soldiers, who participate in military conflicts [15]. Concerning the plight of desperate refugees, there are always unforeseen psychological repercussions [16]. Early life stressors in children are characteristically known to leave long-term unfortunate consequences due to separation from family and loss of parents [17–21]. Even when families manage to stay together, parental distress undermines their role as caregivers. Outcomes for children include attachment disorders, personality disorders, and an increased likelihood of suicide [22, 23]. Violence against women and children escalates during war time [24, 25].

Depending on the severity of the impact, specific physical, psychosocial, and mental health promotional support are needed [26, 27]. Psycho-educational, psychosocial, and other integrated health support are always required, despite their inevitable economic costs. Today, in Ukraine, we are witnessing a catastrophe of giant proportions. Urban districts inhabited by peaceful citizens, women, children, and the elderly are being targeted with deadly weapons, civilian infrastructures, and communications are being destroyed and damaged; fear, doom, and hopelessness are creating a new pandemic. Moreover, disinformation campaigns are ramping up, further sowing chaos in Ukraine and its near neighbors. Politicians and the media are equally to be blamed for these deadly games. There are those who utilize the media to engage in unethical activities, such as spreading misinformation, disinformation, mal-information, and alternative facts [28]. As a result, even the well-intentioned fall prey to incorrect information and spread it through social media. This instills anxiety in the population at large and leads to polarization, culminating in serious harm. Disaster stressors have a catastrophic impact on mental health during times of

crisis. As scientists and clinicians, we believe that we need to devote ourselves to (i) preventing wars; (ii) documenting their impact, and (iii) aiding in the development of relief measures.

The impact of COVID-19 continues and will do so for the foreseeable future. By the end of 2021, the number of school days lost had surpassed 200—roughly a school year and a half. This is likely to affect the growth and educational attainment of students at all levels. According to the World Bank, a 7-month absence from school increased the percentage of pupils in 'learning poverty' from 53 to 63 percent by late 2020 [29]. A billion children's futures are in jeopardy around the world. COVID-19 has already set back a generation to which we owe our continuing support [30]. The current war situation can only exacerbate the 'learning poverty' and future earning potential of the children of continental Europe. Taken together, human rights are being violated because, as outlined in a recent dignity neuroscience model [31], human rights are rooted in the fundamental properties of the human brain.

As scientists, we are banding together to speak out against all wars [32]. We stand ready to provide scientific evidence that leads to more effective global diplomacy and leadership in times of crisis, such as the crisis we are experiencing today. We believe that science can make the world a healthier, more egalitarian, just, resilient, prosperous, and peaceful place. Mutual respect is the alternative to violent actions, armed conflicts, and battlefields. Negotiations are always preferable to killings. Multilateral bodies such as the UN and neutral, respected, world leaders can play a pivotal role in supporting peace efforts and providing much-needed help to refugees and displaced people. Nelson Mandela said: "*Negotiation and discussion are the greatest weapons we have for promoting peace and development.*"

All inhabitants of this planet, have the right and responsibility to live in peace and harmony, to resolve our differences, and find solutions to the most difficult problems. Human lives are too precious to be used as a bargaining chip for resolving political animosities and personal ambitions.

Science is generally seen as informed, neutral and trustworthy [33, 34]. Scientists are usually free of political ideologies. In a time of peril, as scientists, we believe that the global economy, global security, and public health and safety should all be safeguarded. Let us avert devastating and permanent damage to the earth and humanity.

Our scientific community, experts in sociology, economy, political science, global diplomacy, military science, history, psychology, medicine, and philosophy is fully prepared to advise governments. We can help in the search for peaceful resolutions to war and in rebuilding war-torn societies [35]. Promoting public health equity and tackling health disparities and institutional racism are crucial during times of political instability, especially in conflict-affected countries. For

a meaningful, multi-stakeholder decision-making process, scientists and physicians, as well as policymakers and other relevant stakeholders, may be required [36]. Appropriate frameworks and strategies are often required, and they must be properly reviewed and implemented. Scientists have an important role to play in global health diplomacy—in educating and influencing the world of international relations [37] and we are willing to step up to the plate.

There is no winner in modern war; everyone loses. There is only one Earth for us to live on. We, as scientists, uphold human rights and justice because we see the evidence of profound generational harm when rights are violated. As a matter of utmost priority, humankind must abandon physical conflict as a means of resolving problems and ensuring a peaceful world for future generations. Let us come together as fellow human beings and follow in the footsteps of Mahatma Gandhi. As he said, "*I see neither bravery nor sacrifice in destroying life or property for offence or defense.*"

## 1 Data Sharing

Data sharing not applicable to this article as no datasets were generated or analyzed during the current study.

## Declarations

**Conflict of interest** The scientists who have authored this letter are doing so in their individual capacities, not on behalf of their institutions. The authors have read the journal's policy and have the following potential conflicts: S.R.Pandi-Perumal is a stockholder and the President and Chief Executive Officer of Somnogen Canada Inc, a Canadian corporation. He declares that he has no competing interests that might be perceived to influence the content of this article. This does not alter the authors' adherence to all the journal policies. All remaining authors declare that they have no proprietary, financial, professional, nor any other personal interest of any nature or kind in any product or services and/or company that could be construed or considered to be a potential conflict of interest that might have influenced the views expressed in this manuscript.

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