



Review Article

How Sanctions Have Impacted Iranian Healthcare Sector: A Brief Review

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Abstract

Many studies have shown the crippling effects of sanctions on the healthcare sector of different countries, including Iran. Long-standing sanctions against Iran escalated recently and severely limited commercial activities with Iran. The devastating consequences of these embargoes have affected all aspects of health care delivery in Iran, limiting the availability of critical medicines and medical devices, and negatively impacting primary health care, treatment of complex diseases including cancer, medical tourism, and medical education and research. The present novel coronavirus disease 2019 (COVID-19) pandemic has uncovered this long-standing crisis in the Iranian health care sector. In this communication, we briefly discuss selected aspects of these sanctions and their impact on the health care system and people of Iran during this critical time.

Keywords: Coronavirus, COVID-19, healthcare, Iran, Outbreak sanctions

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Introduction

The novel coronavirus disease 2019 (COVID-19) pandemic has had a dramatic negative impact on population health worldwide. This pandemic also hit Iran, where one of the harshest US sanctions in history has made the public health control of the virus a near-impossible task. This review focuses on the impact of sanctions on the Iranian health sector and Iranian citizens, and the ability of this country to deal with the COVID-19 epidemic.

Economic sanctions have been used by the superpowers to subdue “rogue states” in lieu of direct military confrontation. Such a strategy was meant to achieve its goals with the minimum loss of human lives and suffering. However, in reality, this is rarely the case. Can we justify the death of 560 000 innocent children because of the imposed sanctions on a small nation with a population of 17.5 million? That is precisely what happened in Iraq in the 1990s after imposition of sanctions by the U.N. strongly supported by the United States. Still, some experts believe that this is an underestimation of the real catastrophe.¹ Another example is Cuba, where epidemics of blindness, Guillain-Barre syndrome, and lye ingestion in children were attributed to poor nutrition, lack of chlorinating chemicals, and soap, respectively, after the US embargo that began in 1961.² Sanctions are often justified under Article 41 of the Charter of the UN, which indicates that “The Security Council may decide what measures not

involving the use of armed force are to be employed to give effect to its decisions, These may include complete or partial interruption of economic relations.”³ However, as the impact of economic sanctions on Cuba, Haiti, Yugoslavia, Iraq, Syria, and Iran has shown, sanctions can often have a more devastating effect than wars on the people of the sanctioned country.^{1,2,4}

History of sanctions against Iran goes back to 70 years ago when Great Britain, in response to the nationalization of the Iranian oil industry, imposed sanctions on Iran. The second round of sanctions occurred following the Iranian revolution in 1979, when the Pahlavi Monarchy was ousted, and the Islamic Republic perpetrated the U.S. Embassy hostage crisis. The US Congress then implemented multilateral sanctions on Iran, the scope of which has progressively intensified over the past four decades. Since 2010, the United States has escalated its economic pressure on Iran by targeting Iran’s energy and financial sector, especially Iran’s Central Bank, as well as the insurance industry that provides coverage for international shipping. Sanctions on the financial sector have blocked Iran’s access to the global banking system. Such prohibitions have stopped Iran from partaking in international transactions. At the same time, the Council of the European Union has imposed sanctions on specific Iranian companies, freezing their assets, and suspending economic activities. Collectively, these sanctions have

crippled Iran's domestic economy while blocking trade with the outside world on essential humanitarian goods, such as critical medicines and medical devices. Because of fear of reprisal for violating the US sanctions, many international companies have stopped trading with Iran altogether, even on unsanctioned products.

The Joint Comprehensive Plan of Action (JCPOA) that was adopted by the UN in July 2015 was designed to help normalize the international relationship with Iran.⁵ The JCPOA, however, was short-lived. Even though the International Atomic Energy (IAEA) had continuously confirmed that Iran was fully compliant with this agreement, the U.S. unilaterally withdrew from the joint commission in 2018. With Iran's economy already in disarray, the U.S. government decided to issue additional sanctions, this time targeting oil, the primary source of revenue in Iran. On a large scale, these long-lasting decades of external economic pressure, together with internal economic mismanagement and corruption, led to decreased gross domestic product (GDP), a high inflation rate, and an unprecedented reduction in national currency value (one-half over two years). More shockingly, more than 42% of Iran's 82 million population are living below the poverty line.^{6,7}

The ban on financial transactions and shipping has made international trading with Iran very high-risk, and even impossible.⁸ Moreover, Western countries, led by the United States, have implemented very severe punishments for the companies, banks, or individuals who assist Iran in obtaining essential materials. The UK's "Standard Chartered Bank" was charged with a \$1.099 billion fine due to "sanction violation in trading with Iran".⁹ Regarding the health care sector, it is quite paradoxical that while the U.S. government and European Nations claim that they have exempted essential drugs and medical devices from the sanctions, their most stringent sanctions on Iran's financial sector has made it near impossible to transact in these goods.

Discussion

The health care system of Iran is modeled on a well-designed primary care service. A few years ago, 95% of Iranians were covered by either private insurances or national medical insurance.¹⁰ However, providing a high-quality, comprehensive health service to such a large population requires significant resources. Unfortunately, with the current turbulent financial situation, it is understandable that the allocation of the minimal resources would be oriented toward other priorities, such as food, water, electricity, transportation, and not necessarily toward public health. Generating internal conflicts is one of the chief goals of sanctions that may come at considerable medical costs. At the moment, sanctions have led to increased rates of anxiety disorders, antisocial behavior, as well as many other stress-related

diseases, such as cardiovascular and respiratory diseases in Iran.⁴ For example, death from interpersonal violence increased by 35%, and self-inflicted deaths rose from 5.9 to 6.1 per 100 000 people during the 2011–2014 period.⁶

The pharmaceutical industry and consumers are another target for sanction. Sanctions have led to an interruption in this market, resulting in severe shortage of many drugs and medical supplies. With loss of reliable sources, drug companies have turned to less reliable sources at times, obtaining low-quality materials, leading to decreased drug efficacy and unexpected toxicity. The resultant drug shortage has forced patients and clinics to turn to the black market, sometimes with tragic side effects, such as blindness.¹¹ As pharmaceutical companies have to pay for drugs and raw materials in advance, this has led to many bankruptcies.^{12–15} Certain life-saving drugs have disappeared from the legal market. For example, the availability of lyophilized coagulation factor VIII concentrate for hemophilic patients dropped from 96% to around 3% in 2012. This resulted in severe joint bleeding and disability in about 100 patients and the death of several patients from uncontrolled bleeding.^{16,17} Moreover, the price of baby formula surged by 1400% during the round of sanctions in 2011. A significant portion of the health-care finance in Iran now relies on out of pocket expenditure (~50%). This, together with the exponential rate of inflation (at least 40% in 2014) and the significant decrease in the value of Iran's national currency has resulted in lower public access to the health care services.^{7,18} The effects are felt more by those suffering from chronic diseases, resulting in lower drug compliance of patients, and relapses in many well-controlled patients with diabetes, hypertension, epilepsy, multiple sclerosis, etc. The sanctions have also diminished the availability of vital health maintenance, such as childhood vaccines and anti-rejection drugs for transplant patients.¹⁹ Also, the prices of all goods have multiplied by at least 3 or 4 times, imposing catastrophic expenditures on the families and endangering the health of the patients,¹³ as well as increasing the gap and tension between socioeconomic classes in Iran.¹⁰

Other victims of sanction against Iran are patients with malignancies. Iran is facing a marked increase in the incidence of cancers, which has become the third cause of mortality in the nation. It was predicted that the annual number of new cases would reach 170 000 by 2020.^{15,20} Cancer diagnosis and therapy require a multidisciplinary approach that depends on sophisticated technologies for diagnosis coupled with the use of expensive therapeutics, including biologics, chemo-, radio-, and immunotherapies, as well as surgery. Sanctions have made all of these modalities unavailable or too expensive for the majority of the population, resulting in painful death in many patients.²¹ Moreover, sanctions have affected the availability of radiopharmaceuticals and related nuclear

medicine equipment essential for diagnosis, treatment, and follow-up.²² Sanctions have also diminished the availability of medical devices. The burden on financial transactions and shipping of material to Iran has led to re-utilization and re-sterilization of many medical devices that were meant to be disposable items. At times, common instruments such as endoscopy instruments and sterile gloves are not readily available. MRI, PET-scan, and their needed supplies and accessories, such as liquid helium, are also challenging to find.²³ The sanctions are directly threatening the life of 6 000 000 Iranian patients, and are depriving many others of primary health care needs.⁴ The former U.N. chief Mr. Boutros-Ghali called sanctions “blunt instruments” and added, “They raise the ethical question of whether suffering inflicted on vulnerable groups in the target country is a legitimate means of exerting pressure on political leaders whose behavior is unlikely to be affected by the plight of their subjects”.²⁴

Sanctions have also affected research activities and jeopardized scientific collaborations between the Iranian scientists and the outside world. In 2014, a comparison between the five top-ranked countries of the Middle East revealed that Iran had the least international scientific collaboration in medicine.²⁵ Student and faculty exchange between international institutions and Iranian universities have mostly been suspended or downgraded. Many academic institutions and websites such as “coursera.org” have blocked Iranian students and academics from accessing online educational resources in health care and health promotion.²⁶ Some universities, such as Harvard, had to release guidelines on “Iran sanctions and research collaborations with Iran”.²⁷ Scientific articles from Iran were rejected by some journals based on sanctions and not their scientific merits.²⁸ Moreover, lack of access to authentic and high-quality research material has impeded biomedical research. Also, due to sanctions on financial transactions, Iranian academics and researchers have not been able to order books or scientific journals or to pay for registration and attendance in scientific and educational conferences abroad.¹⁹ Currently, designing and implementing multinational science projects, and participating in international symposiums and workshops are mostly unavailable to Iranian scientists. The recent ban on the issuing of B visa to Iranians prevents non-green card holders from attending US conferences and scientific meetings. Moreover, lack of access to authentic and high-quality research material interferes with the work of Iranian biomedical researches.¹⁹ These actions are entirely against article 26 of the Universal Declaration of Human Rights stating that “education ...shall promote understanding, tolerance, and friendship among all nations, racial or religious groups, and shall further the activities of the United Nations for the maintenance of peace”.²⁹ This can only be achieved through the unimpeded flow of information.

Iran has also been excluded in the past from international and global health networks to the point that financial donations from international NGOs and charities were prohibited by sanctions to help victims of natural disasters in Iran.³⁰ However, despite all these restrictions and challenges, Iran has become a regional and international hub for medical tourism, and a portion of Iran’s economic shortcomings in healthcare has been compensated by the income generated through medical tourism. Unfortunately, sanctions have also affected Iran’s prominence in medical tourism in the region, so that while Iran had the potential to earn \$7 billion annually, this has been reduced to less than \$1 billion per year.³¹

A more concerning issue is the brain drain from the sanctioned countries like Iran. Typically, when scientists find it too challenging to pursue science in their homeland, they migrate to resource-rich countries to continue their career trajectories. The dwindling of highly educated professionals endangers scientific production in a sanctioned country. In order to quantify this, it was estimated in 2009 that the long-term cost of yearly brain drain for Iran was about \$50 billion, while the annual national oil’s export was \$12 billion.³²

It is interesting that despite all these draconian restrictions and hardships, Iran is the source of 514 496 scientific publications per year and 4 281 547 citations. Iran was ranked 22nd among 239 countries of the world in its scientific publication rate in March 2020,³³ It was 6th in the world in nanotechnology publications in 2016,³⁴ and 2nd in the world (after the GDP) in stem cell research activity in 2017.³⁵ Undoubtedly, the quantity and quality of knowledge production in Iran would have been significantly higher if it was not burdened by extreme sanction it is facing. Moreover, Iran’s remarkable success in providing access to health care in remote areas, through a broad network of primary health care facilities known as “health houses,” has served as a model, and was recently adopted in the Mississippi Delta for developing its rural primary healthcare delivery system.³⁶ Iran has also had a healthy and surprisingly successful program for population control among the developing countries.³⁷ In the realm of harm reduction, Iran has developed the most robust infrastructure in the Middle East, which is featured by availability of low threshold methadone maintenance treatment, and needle, syringe, and condom distribution services.³⁸ Concerning harm reduction in HIV/AIDS patients, Iran has implemented a more extensive program than the U.S. in the number of cases covered.³⁹ One important model is the creation of “triangular clinics” that provide a variety of prevention and treatment services for sexually transmitted diseases, HIV, and injecting drug abusers. This was considered by the World Health Organization (WHO) in 2004 as the best practice model.⁴⁰ Iran has also had some significant achievements in the field of transplant medicine. As an example, the Avicenna

hospital in Shiraz is now ranked first in the world for the number of liver transplants done annually.⁴¹

Conclusion

Currently, Iran is one of the top countries infected with the COVID-19. Under such embargos, it has been quite difficult for the government of Iran to provide adequate protection to health care workers, including N-95 masks, protective gowns, and eye/face shields. It has also been challenging to provide testing kits, medications like antiviral drugs, ventilators, and other supplies. Besides, Iran also has more than 100 000 chemically injured veterans from the Iraq-Iran war of three decades ago. They need nebulizers, oxygen capsules, and many other pieces of equipment, and are very prone to suffer from respiratory ailments. Furthermore, there is a relative lack of hygiene products in pharmacies, such as antibacterial gels, face masks, and sanitizers for the public. The government of Iran wanted to pursue a quarantine policy to mitigate the spread of the virus.⁴² Unfortunately, the crippling economic sanctions and an unprecedented drop in oil price prevents Iran from adopting a full quarantine policy, as announced by the mayor of Tehran.⁴³ On June 18, 2020, the numbers of infected individuals was as high as 197 000 cases, with around 9200 deaths.⁴⁴ In the reopening phase, the country faced a dilemma: “death by poverty” or “death by the virus”. This resulted in a faster and unregulated reopening of the markets and easing the restriction of regular activities. As the Iran’s president, Mr. Rouhani, mentioned, “the battle could not fully succeed independent of salvaging the economy, which was being pummeled by the US sanctions even before the virus hit”.⁴⁵ This hasty action has endangered the semi-controlled state of the disease in the country, and several cities, especially in the south of Iran, are turning into epicenters again. A recent paper in Science magazine has foreseen that Iran will probably be the first country that will experience the second wave of COVID-19.⁴⁶ In our view, this will not only endanger the health of the people of Iranian, but it will also interrupt the fragile control of the pandemic throughout the world.^{46,47} Already in a critical condition, the healthcare system of Iran has encountered another shock: a new round of sanctions on June 8, 2020.⁴⁸

Sanctions by no means should be considered a humane substitution for intervention by armed forces since they can have more long-lasting and devastating impacts on people. It has paradoxically been claimed that “these sanctions against Iran are smart and targeted.” Richard Nephew, the designer of such inhumane hardships, proudly published a book entitled “The Art of Sanctions” in 2017⁴⁹ defending the sanction against Iran and encouraging policymakers to read his book. Past experiences, however, show that sanctions have not gained their major goal of changing the policy of the sanctioned governments. The boycotts and sanctions on Iraq, Zimbabwe, Cuba, Iran, and many other countries have been a complete failure in changing

governments’ policies, and instead, have resulted in significant suffering by the innocent civilians. Based on Article 2 of the U.N. Universal Declaration of Human Rights in 1948, every human being has the right to have a standard of living adequate for health, food, and social security regardless of nation, race, gender, and politics.²⁹ Sanctions have deprived many people of their primary livelihood and dignity. They have given authoritarian governments justification to intensify repression in light of the economic hardship caused by the sanctions.⁵⁰ The government of Iran and the Iranian health care workers are doing their best to confront the COVID-19 pandemic. However, without an immediate sanctions relief, the result will be the loss of many innocent lives that would have been preventable. Global health diplomacy is urgently needed in this time of grave danger.⁵¹

Authors’ Contribution

HA researched the pertinent literature and prepared the first draft of the manuscript. AR and BB critically reviewed and edited the manuscript. All authors have reviewed the final draft and agree with its content.

Conflict of Interest Disclosures

The authors find no conflict of interest in preparing this manuscript. The authors declare no competing financial and/or non-financial interests in preparing this manuscript.

Ethical Statement

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