



Social determinants of health inequity in Iran: a narrative review

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Abstract

Objective COVID-19 burden the health system by influencing several aspects of social determinants of health (SDH). We review SDH inequity in Iran with notice on COVID-19 pandemic and sanctions.

Method The Databases such as MEDLINE, Scopus, and Google Scholar were searched. The SDH components were extracted regarding the effect of COVID-19 and sanctions. Global burden of disease was used to evaluate the impact of sanctions on mortality in Iran.

Result The literacy rate improved over the last decades but, there is still inequality between provinces. Age and regional inequity exists, regarding NCD mortality. Food insecurity varies in different regions between 20% and 60%. Providing care for a growing aging population, with a large burden of NCDs and disabilities will be the major issue in the next decade. The decrease slope of mortality rate due to NCDs, have become smoother since impose of sanctions, while, cancer mortality have changed upwards. COVID-19, and sanctions negatively impacts lower socioeconomically vulnerable groups due to preexisting conditions which wider the existing inequity in SDH are adding a heavy burden of inequity in Iran.

Conclusion Iran, similar to large numbers of countries, face inequity at regional level in different SDH related issues. The COVID-19 pandemic showed that economic status and health are aligned. Sanctions superimposed on the COVID-19 pandemic cause harm to millions of innocent people. One of the main goals of health authorities is to reduce SDH inequity in order to achieve the goal of “health for all”. To tackle these inequities, prompt action is needed.

Keywords SDH inequity · Sanction · COVID-19 pandemic · Iran

Introduction

According to the World Health Organization (WHO) Regional Office on the social determinant of health in the Eastern Mediterranean region on inequities of Social Determinants Of Health (SDH) called “built back fairer: achieving health

equity in eastern Mediterranean region “ published on March 31, 2021[1], the inequity in health is determined with social conditions through life such as the place of birth, grow, live, work, gender and age groups, extremes of weather, climate change and land poverty with effects on food supplies. In addition, internet and digital access inequity due to the fast pace of technology became a major problem of SDH, nowadays, especially in vulnerable populations [1, 2].

There is evident inequity in SDH globally, but it is striking in the Eastern Mediterranean region [2]. The SDH inequity is tangible not only between countries of Eastern Mediterranean region but also within each country [2, 3, 4]. In 2019, life expectancy in Kuwait 81.4 years while it is 58.5 in Somalia. Moreover, death rate in Somalia with highest mortality rate is nearly 5.5 times higher than Qatar with lowest mortality rate in Eastern Mediterranean region[5]. Iran, which is located in this region, suffers from SDH inequity as well. As an example, the under-five mortality rate has been decreased during the last two decades in both genders by about -86%, the rate of mortality in males is nearly 1.2 times higher than in females

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in 2019 [6]. The gender inequity in adult mortality is higher comparing with child mortality. This trend of adult mortality rate decrease -48% for male and -52% for female, through forty years, which indicates the lower decrease slope comparing to child mortality [6]. In border provinces comparing to other regions of the country the mortality rate is underprivileged which reminds of the geographical inequity [6]. This concern arises for other SDH components such as water sanitation, a healthy environment, food security, conflicts, immigration, and work security [7].

Recently, the first major amplifying factor which intensifies the existing SDH inequity is the COVID-19 pandemic [3]. The number of deaths due to COVID-19 is high in Iran comparing to other countries globally [8]. In addition, Iran is facing the multiple waves of COVID-19, and vaccination coverage is not as fast as COVID infectious spread in different provinces [9]. COVID-19 affects SDH indirectly by induced unemployment and poverty due to illness or lockdowns, and various mental and social harms, and directly by augmenting burden to health system. Moreover, vaccination inaccessibility and unclear injection program will increase health inequity in societies. This issue is even worse in low –middle income countries with previous insufficient infrastructure. Sanction is the next escalating issue that affects directly and indirectly not only the SDH inequity but also the COVID-19 vaccination accessibility [10, 11]. Shrinkage in revenues, general welfare of people, and value of national currency, amount of banking, shipments, and financial services, besides upsurge in inflation rate, and unemployment are more or less the penalties of sanctions. Sanctions will reduce not only the capacity of individuals to afford wholesome food, and health care, but also indirectly impacts the ability of government to provide medications, medical equipment's and food [12].

It is almost important to work on district-level issues as well as national issues to achieve fairer health equity and take action guided by national principles in the current situation to avoid preventable SDH inequity. This needs evidence and a monitoring framework on various aspects of SDH inequities at the subnational level, concerning COVID-19 pandemic and sanctions, to enable government and stockholders to rebuild the health system in a way that profits the whole population by available resources.

Method

In this narrative review on social determinant of health in Iran, the Databases such as MEDLINE, Scopus, and Google Scholar were searched for “Social determinants of Health”, “sanctions”, “COVID-19”, and “Iran”. All notorious papers were uploaded into Endnote and duplicates were removed. The various aspects of SDH in Iran regarding COVID-19 and effect of sanctions was extracted. In addition, global

burden of disease data [5] base was used to evaluate the impact of sanctions on Iran.

Social determinants of health inequity

Life expectancy

There is a large gap between provinces in life expectancy at birth. The highest life expectancy is (Tehran) 82.8 in both the women and the men, and the lowest life expectancy is (Golestan and Sistan and Baluchistan) 77 in women and 72 in men [6]. Hence, the provinces with the lowest life expectancy, have a better situation than Iraq, Afghanistan, and Pakistan. However, Iran has a lower mean life expectancy than Turkey as a neighbor country, Kuwait, Qatar, and Jordan as Middle East and North Africa (MENA) region countries[2]. Healthy Life Expectancy (HALE) is lower than life expectancy about a decade in Iran. The HALE is higher in men comparing to women in Tehran which are in contrast with life expectancy. This means that, in the capital of Iran, women have a longer life although, it is not healthy compared to men [5]. This age gap in life expectancy and HALE may owing to the socio-economic inequity between genders as they age. Male ownership within the household, and subordinate position of women in society, and the gap of payment between genders, resulting in the lower capacity of women welfare [13].

Income and poverty

From 2004 to 2018 the overall poverty has been reduced [14, 15]. The upsurge in average income decreases poverty while rising inequity escalate poverty. The economic growth is not sufficient to hinder poverty itself and is affected by earnings inequity between provinces of Iran [15]. The number of poor households varies between more than 200 per 1000 households in some eastern districts to on rare occasions in some central districts in both rural and urban regions [14]. The poverty rate is high particularly in eastern provinces which indicate the poverty inequity and the variation is parallel with the life expectancy reports on this region [14, 15]. In addition, COVID-19 will negatively affect SDH in long term especially in those who are poor and vulnerable. Low access to free treatment of COVID-19, test, or vaccination, plus COVID-19 related unemployment, lack of effective insurance, inadequate social support will prompt poverty [16, 17, 18]. It is suggested to lessen the number of death and infectious by taking steps to minimize inequity in SDH elements dominantly in poor populations and implement equitable effective health access program in a multidisciplinary approach which organized by the uppermost layer of authority to achieve fairer Health coverage in the era

of COVID-19 pandemic [3]. Government had better provide the basic needs of underprivileged family units in order to achieve the development process in the society [19]. Such government agendas require identifying and targeting the poor community predominantly in the post-COVID-19 era [16].

Unemployment and education

According to the latest labor force survey report of Iran in 2018, over 12 years period, the female unemployment rate has increased about 1.8% while this is only 0.4% in the case of male unemployment. Moreover, the female labor force participation rate (16.1%) is low in comparison with male (64.8%), and the average of the MENA (20%) countries, and neighboring countries such as Afghanistan (49%), and Pakistan (24%) [20, 21]. This demonstrates gender discrimination, as well as, geographical unfairness in employment rate as an SDH element [22]. Unemployment, Informal jobs, working in dangerous and unregulated settings, poverty, child labor, and lack of social and economic protection will negatively affect health. In Iran, these issues could result in an economic shock, due to sanctions and COVID-19 pandemic. Iranian gender unemployment and participation rates depend on community and ethnic culture, fundamental, and socioeconomic issues. It is also related to educational position. Although the literacy rate improved over the last decades, there is still over 19 percent inequality in literacy rate between Tehran with the highest rate and Sistan and Baluchistan with the lowest rate [23]. In some rural regions, internet access is still truncated. This will challenge access to up-to-date education and information and augment the chasm of inequity in virtual education, particularly in the era of COVID-19 pandemic among children including girls. Access to personal computer, tablets and other digital communicating devices are inadequate in rural and urban areas due to high price and poverty. This will lead to an increasing rate of school failure and escalation of illiteracy. Illiteracy induces gender-based violence and child marriage especially in some cultural and ethnic groups.

It is necessary to improve health equity by reducing unemployment with a focus on the younger generation and women to improve the quality of work, eliminate child labor and reduce inequity chasm [19]. Encouragement programs for promoting education and enhancing labor expertise in women could reduce female unemployment in Iran [20, 22]. Promoting the culture of creativity and self-employment and facilitating women's entrepreneurship, particularly on the basis of the cultural and religious conditions of Iran, could mitigate female unemployment and reduce gender inequity [20].

Food insecurity

Food insecurity is directly linked to the economic status of households which is affected by the COVID-19 pandemic and sanctions. A study during the COVID-19 pandemic in Tehran demonstrates that 61% of the capital households confronted marginal, moderate and nearly 35% had severe food insecurity [24]. There are other reports that indicate food insecurity prevalence in different regions of Iran varies between 20% and 60% [25]. This is even worse in female-headed households (75%) and low-income communities (86%) [24]. These reports show a wide range of gender, regional and socio-economical inequity which shows that immediate governmental action is needed. Given that food insecurity is rooted in unemployment, poverty, economic status of households, and food price [26, 27, 28], the COVID-19 pandemic affects not only directly, the food availability, accessibility, utilization, and stability [29], but also indirectly, by inducing unemployment and economic crises [30]. Food insecurity will become worse in the presence of economic sanctions and COVID-19 lockdowns [31].

Environmental inequity

Environmental inequity is rooted in income inequity which results in lower coping capacity, lower access to healthy infrastructures like safe water, and prevention services. This gives rise to greater environmental exposures such as air pollution. Environmental hazards include pollution, natural resource degradation, climate change, natural disasters, and conflicts. This is the vicious cycle of environmental inequity that flows within and between countries [32, 33]. In Iran, urbanization is growing rapidly especially in cosmopolitan cities in central and north of Iran due to enhanced economic conditions and availability of various facilities [34]. However, the ineffective urban structure causes environmental concerns such as water, soil, and air pollution, forest degradation in the north of Iran, and per capita reduction of green space [34, 35]. Recently, vital actions have been taken for an investment in recycling public waste, and growing the per capita green space [34]. It is suggested to improve housing quality, improve the accessible transport system, access to sanitation water, and strengthen regional planning mechanism to invade environmental inequity at the subnational level [34]. There are not much evidence on the effect of COVID-19 on environmental inequity including researches from Iran, however, an association is reported between COVID-19 experience and environmental exposures of individuals [36]. Future research is needed on this area.

Mortality rate

Over the past 40 years, the child mortality rate at the national level decreased by 7 folds, although the reduction in adult mortality rate was about 2 folds at the same time [6]. At the provincial level, the difference in child mortality rate was nearly 35 per 100000 (Mazandaran with 6.7 versus South Khorasan with 41.7). This difference in adult mortality rate was 4 per 100000 (Alborz with 4.0 versus Sistan and Baluchistan with 8.0) in females and 7.1 in males (Alborz with 7.0 versus Sistan and Baluchistan with 14.1) which resemble gender inequity [6]. The geographical inequity is obvious between central and border provinces particularly eastern border provinces, not only in child mortality as an indicator for health system performance quality, but also in adult mortality [6]. Regarding the establishment of Primary Health care worker service, Iran could achieve the fourth goal of the Millennium Development Goals (MDGs) on child mortality and Sustainable Development Goals (SDG) in most provinces [37], however, the COVID-19 pandemic is a challenge on adult and child mortality [8]. PHC unite is a great infrastructure opportunity for Iran health system to fight against COVID-19 pandemic, although it has several limitations. PHC was not established and trained for emergency situations and could not support all the treatment and preventive strategies for controlling COVID-19 and all the previous assigned programs -which were established to demolish mortality rate-at the same time. Hence, this infrastructure helped the health system to minimize the harm of pandemic on SDH inequity by providing home-to-home screening and registering the health status of all Iranians in a system to make available future treatment and health support [8]. Moreover, after implementation of Health Transformation Plan in Iran to reduce regional health inequity [38], the number of hospital beds and other related facilities elevated dramatically. This facilitated the management of hospitalized bed need in district level at the COVID-19 pandemic period [39].

Mortality rate due to NCDs have a challenging burden remarkably in low –middle-income countries and low socioeconomic status [40]. It is targeted by WHO to reduce 25% of premature deaths due to NCDs by 2025 which are preventable through controlling modifiable risk factors. Plus, SDG's goal is to reduce one-third of NCDs' death by 2030 [41]. Pervious joint effect risk factors modelling report on NCDs from Iran on achievement of SDG goals reveals that, only reduction in premature death goal of cancer and cardiovascular disease will be achieved for all provinces, in female. Reducing premature death achievement will be accomplished in 26 out of 30 provinces, in male. This indicate both gender and geographical inequity regarding NCD mortality in Iran [42]. Moreover, previously, it had been showed that a considerable age and regional inequity

exists in Iran, regarding NCD mortality [43]. In the COVID-19 pandemic era, NCD utilization is reduced significantly and its impact on NCD mortality will be demonstrated in near future [44]. Concerning the gender and geographical inequity regarding achievement through diminishing NCD premature mortality, will be more crucial in the shadow of COVID-19 pandemic, not only in Iran, but also in other similar countries as well. In addition, NCDs affect COVID-19 mortality directly which boosts the attributed mortality [44]. Measures for NCDs Health care utilization, effective treatment coverage, and preventive strategies, plus, society awareness of NCDs risk factors could help local authorities to adopt the most appropriate intervention to achieve MDGs and SDG goals [8, 40, 45, 46].

Aging

Rapid fertility decline in past decades, along with increasing the life expectancy, encounters Iran with aging as a transition in population pattern. Revenue from labor, assets, pension savings, family and employers supports, health coverage, and insurance are key elements in the welfare of the elderly and are part of SDH in this age group which varies in Iran based on the socioeconomic disparity in the country [13]. Rich households depend on their possessions while the low-middle income groups have to rely on family or government official funding. Moreover, the speed of aging in Iran is outstanding. This is the reason why government executives are concerned about population aging. It is estimated that the population of 65 years and older will be triple in 26 years (2023 – 2049) [13]. Household expenditure on health and food in Iran showed an immense level of inequity with the Gini coefficient of inequity of 0.48 [47] while out-of-pocket expenses included 54 percent of household health expenditure [47]. Iran is ill-prepared for this brisk aging, it neither has a sufficient-designed economic groundwork, nor has the monetary and official infrastructure like the one that developed countries have made over many decades. Providing care for a growing aging population, with a large burden of NCDs and disabilities will be the major issue in the next decade [40] which the vast majority of Iranian families do not have adequate properties to overcome this challenge and it is the duty of government and social policy agencies to address this issue properly to reduce the SDH inequity in this neglected age group [13]. The situation will be even worse in the post-COVID-19 era because of the COVID-19 related harms on both the wealth and health of households [11, 28, 48, 49, 50].

Sanctions

Sanctions, fit into the international regulations, have been used to compel governments to change their behavior at

international communications. Sanctions are allied with the deterioration of economic and social human rights which includes the right to health and affect the inequity of SDH in various ways. The health of people and general welfare is deteriorated by dwindling the country’s manufacture, incomes, and the value of national currency and upsurge of unemployment and inflation [51]. Consequently, people cannot meet the expense of nutritious food and health care. Furthermore, the import of medicines, medical equipment, and food are directly affected as most international medical and food producers could not retail their facilities due to the shipment and banking limitations of sections [10, 49, 52]. This will result in a great gap in food insecurity and lack of medication which affect prominently the life of vulnerable groups, patients, and children [10, 48, 52]. This is true in the case of Iran after several wide-ranging sanctions. Based on GBD reports [5], It is showed that the decrease slop of mortality rate due to NCDs, have become smoother since

impose of sanctions. The mortality rate due to cancer have changed upwards after sanctions in 2015 (Figure 1). There are parallel evidence on the effect of sanctions on cancer in Iran [53–55, 56]. This could be due to limitation in medicine accessibility like chemotherapy drugs, medications, and diagnostic tools [48, 56, 57, 58]. On the other hand, despite the high level of primary health public insurance coverage, this insurance could not be responsive for the cost of expensive treatments, such as chemotherapy, which will result in increased chasm between various socio-economical levels of society [55, 57]. The damage of sanctions on the social system will result In mental disorder and addiction particularly in the younger age group, and the coincidence of sanctions with the COVID-19 pandemic, encounter Iran to a notifying state of the chasm on SDH inequity at the subnational level which needs an emerging action, not only on social rehabilitation for mental and social disorders and violence -mainly for vulnerable groups such as child and women-, but also to

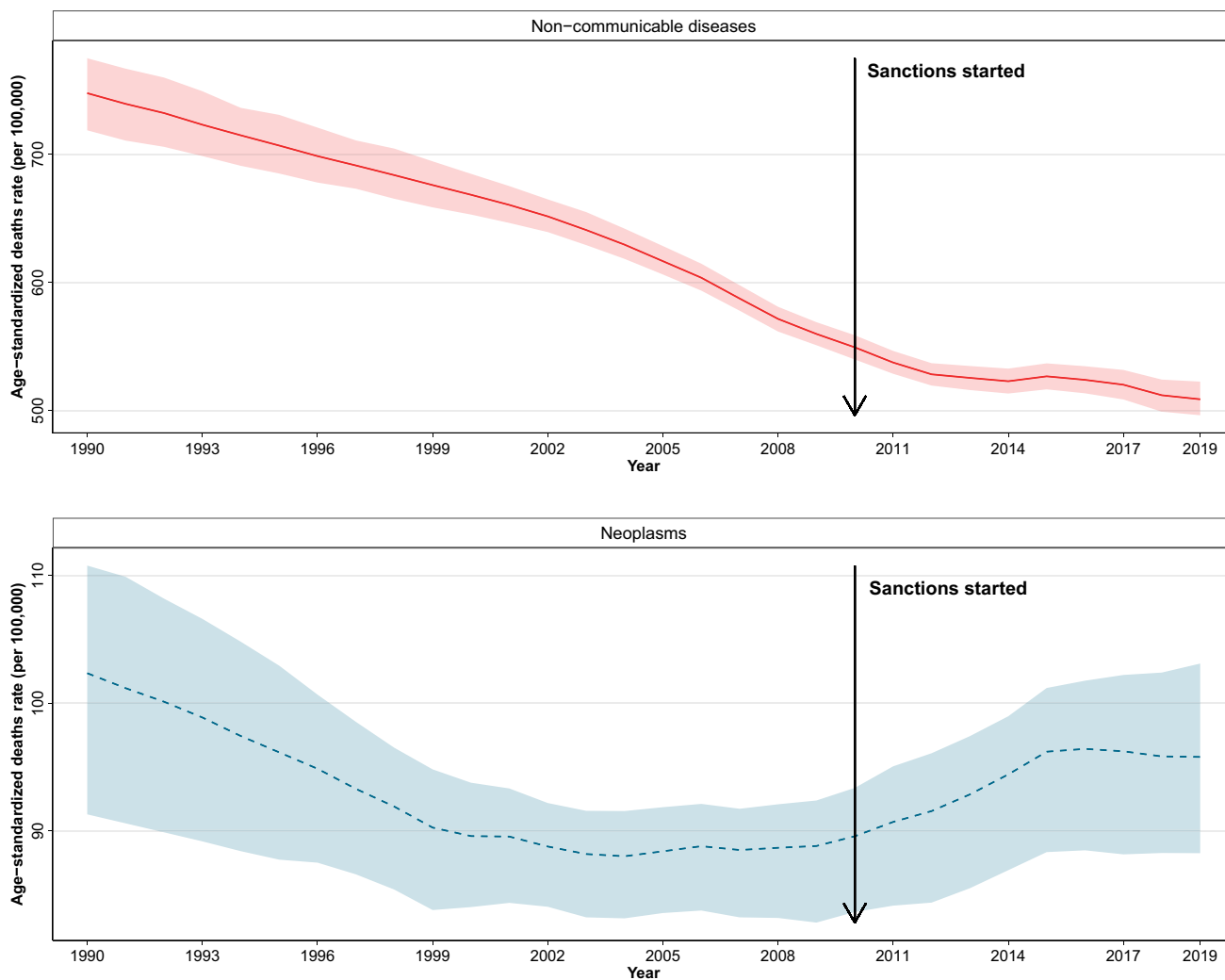


Fig. 1. Age standardized death rate (per 100,000) of Non-communicable diseases and Neoplasm from 1990 to 2019

rebuild other aspects of SDH like food security, education, work lives, and health effective coverage [3, 59, 60, 61].

Implications for policy

There are many issues to minimize SDH inequity and provide accessible health care and universal health coverage for all provinces in Iran, regarding economic, social, cultural, educational, and ethnic diversities, aging pattern, growing exposure to health risks, expanding health care fees, rising NCDs, and available limited resources. COVID-19 pandemic and sanctions are adding a heavy burden of inequity regarding SDH in Iran. COVID-19 negatively impacts lower socioeconomically vulnerable groups due to preexisting conditions which wider the existing inequity in SDH [16]. To tackle this inequity, prompt action is needed.

From a policy perspective, direct payments to a vulnerable group, free food packages, rescheduling of unpaid bank loans, guaranteed income enhancement, loan guarantee for enterprises, and increasing credit availability are essential economic strategies that can enhance low socioeconomic households to cope with food insecurity and other SDH inequities during COVID-19, as well as, international sanctions [16, 49]. Measuring regional-based inequity is important, as people in different regions share analogous conditions such as health system supplies and resource allocation, availability of education, local facilities and infrastructure, environmental pollutant issues, and similar cultures that directly or indirectly affect health. Thus, monitoring health inequalities between regions can provide evidence-based information for authorities, especially when disparities are considerable. One of the suggested interventions to minimize inequity could be cultivating the family budget through subsidies on the rudimentary purchases of life and providing effective medical insurance coverage by authorities. The subsidies on medical care for NCDs and staple food could directly minimize inequity in elderly age group, while, the subsidies on education could indirectly affect them by releasing family budget and thus improve its capacity to care. Both should be considered by stockholders [13, 19]. In addition, it is needed to act emergent action on psychological and behavioral issues by providing broadcasting inspiring programs on TV and social media. This is effective not only in Iran but also globally to reduce the psychological harm of the COVID-19 era [16]. Equitable vaccination against COVID-19 is a human right and must not be effected by sanctions or commercial profits [62]. This also needs a clear platforms, and guidelines to distribute available vaccines equitably in high-risk groups and other people.

The Health system should expand the collaboration with other sectors, focus more on refining living conditions, improve health, and treat ill patients. WHO recommended developing a population health system to implement

essential public health functions in each country to achieve universal public health standards, with a focus on equity, and take an action on the social determinants of health [19]. This will not be possible unless health equity is implemented in the heart of the government [3, 19]. Without the supervision, support, and action of superior power, none of the social determinants of health inequities could be addressed regarding being a multidisciplinary issue. Although, it is essential to engage all society with SDH issues, expanding social protections, and supporting efforts on climate change. Strengthen collaboration with religious leaders and organizations to support health equity, gender equity and eliminate discrimination against refugees and migrants are crucial [2, 19]. Encouraging not only NGOs and other humanitarian services to focus on SDH equity, but also commercial sectors to help equity and halt detrimental activities is another major strategy to tackle SDH inequities. The role of local government is inevitable due to cultural and ethnic diversity in Iran.

Conclusion

Developing accurate data on health equity and social determinants of health and monitoring system with linkage to sustainable development goals such as digital platform on predicting the achievement of provinces to SDG goals in 2030, enable the health stakeholders to have greater transparency and accountability and take action anywhere is needed. Pro-equity tools, better data, and research such as completeness of death registry, legal approaches based on human rights, and sustainable development goal achievements are WHO recommendations in this regard [1, 2, 19].

Finally, the COVID-19 pandemic showed that economic status and health are aligned [3], therefore Sanctions superimposed on the COVID-19 pandemic cause harm to millions of innocent people in Iran. International agencies should take urgent action to halt this human catastrophe until the disease is completely disappearing.

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