

The role of informal recycling in the spreading of COVID-19

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Dear Editor,

Informal recycling is one of the serious problems of municipal solid waste management. In 2019, with the outbreak of the coronavirus disease 2019 (COVID-19) virus in the world, many countries have faced with serious economic, which subsequently has led to the engagement of low-income people in informal recycling jobs. The virus can remain on the surface of waste materials such as cardboard, plastics, clothes, and metals for several hours to several days and maintain its pathogenicity (1).

The collection of such waste can have an undeniable impact on the lives of workers involved in informal waste recycling and recyclers put their lives in danger.

This situation may become even more critical in developing countries where waste management workers are not equipped with adequate personal protective equipment (PPE). Informal recyclers in these countries are at high risk of becoming infected with the virus (2). Many epidemiologic studies in both developed and developing countries have proven that solid waste disposal is a dangerous and hazardous activity for informal recyclers (3). In many countries with limited resources, recycling is a source of income for many low-income citizens living on the outskirts of towns, and thus, the collection, sorting, and disposal of waste is done under dangerous and unhealthy conditions by unofficial workers. The crisis caused by the outbreak of the COVID-19 virus has changed the global efforts in waste generation and management, and therefore, special attention has been paid to it. Solid waste management has changed so much since the outbreak of the virus, according to a report, New York City is witnessing has led to an increase in residential waste generation from 5 to 30% and a decline in commercial and industrial waste

generation to 50% (2,4).

Surveys have shown that a low percentage of these workers (28%) use proper techniques for waste segregation, which has resulted in less recyclable matter (5).

The COVID-19 virus has affected the world in unpredictable ways and it has been proven that proper social distancing techniques combined with heeding to health guidelines and quarantine strategies are effective in fighting against this virus (6).

In developing countries, waste accumulation and recycling have become a source of income for poor societies. But it has also raised many health concerns (7). Unofficial living environments are in no way prepared against the COVID-19 virus because they do not have the essentials (e.g. clean water, sewage systems, waste disposal techniques, and safe housing) for living during the epidemic. Also, limitations in space, violence, and overpopulation in the slums means more physical closeness and the impossibility of self-quarantine during a breakout. People living in unofficial suburban areas are financially vulnerable to the risk of an outbreak. Any official institution that does not understand these realities, puts a large percentage of these societies in danger. Most top-down strategies provided by scientists to fight against a viral disease do not account for the populations living in the slums. Therefore, it is important to set policies for decreasing the spread of COVID-19 based on a new research and financial support for slum societies, homeless people, and those living in undesirable environments (8).

Raising awareness of unofficial workers on health guidelines during the breakout is crucial. Also, presenting standard recycling machines along with using clean protective equipment (like masks) and first-aid education can significantly decrease the hazards of non-standard waste disposal (7). Few people who are disposing waste informally wear gloves and most of them do not wear masks at all. Some of them find dead animal carcasses and try to sell them, and some bring unsanitary food into their homes for future consumption (4). All of these cases can help the spread of the disease to others.

COVID-19 is an infectious viral disease that causes acute respiratory syndrome coronavirus-2 (SARS-COV-2) and emerged in Wuhan, China (9). Genome analysis has shown that SARS-COV-2 is phylogenetically related to SARS (10). Social distancing measures can help keep SARS away, and thus, helps fight against COVID-19 as well. With spreading of the virus, weak health systems should not be allowed to help the spread of the virus because of countermeasures (11).

Given this information, can we really claim that the correct safety measures are being taken in waste disposal? Waste disposal management in manufacturing institutions must be done more carefully and factors such as virus resistance and weather conditions should be considered in areas with infected people. People who have infected with the virus make infectious waste, which is usually thrown out as normal household waste, and depending on how this waste is handled, it can be dangerous to both workers and the environment. So it is important to take proper measures. Infectious wastes are suggested to be isolated and taken to a specified place, and then, disposed correctly (12).

Closing remark

The novel coronavirus (SARS-COV-2) has affected 213 countries across the world, so that since August 23, 2020, 23 057 288 confirmed cases of COVID-19, including 800 906 deaths, have been reported to the WHO till the time of writing this article. How many COVID-19 deaths are related to informal recyclers?

In a study that being done by author conducted on a population of 750 000 people in Kerman, Iran, in 2020, a fraction of the population (n=34 000) were engaged in informal recycling. This includes a percentage of about 0.046% of the population, which can be very significant in large populations. Overall, unofficial workers have a particular set of health concerns. Informal solid waste workers who collect and dispose waste have an important job. But the collection and separation of different types of waste during the Coronavirus epidemic without proper management can be dangerous for these workers were infected people live. So raising awareness of informal solid waste workers about right procedures for isolating infectious waste is of great importance and it is recommended to put rules in place so that all informal recyclers are kept away from disposed waste.

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Ethical issues

It is hereby declared that this work and the obtained results are the original experimental work of authors and it has

neither been published, nor is under review in another journal.

Competing interests

The authors declare that they have no conflict of interests.

Authors' contributions

This work is the result of the full cooperation of all the authors of this study.

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