SCIENCE

How Social Isolation Affects Heat Risks In Japan

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Sep 2, 2022, 06:14am EDT

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Socially distanced fishers under umbrellas in Sumida, Tokyo CHRISTINE RO

Masayuki Hirai reflects that when he was a child, it never got beyond 35°C. Temperatures of 40°C now occur. “These days the heat is getting to a very dangerous level,” says Hirai, who coordinates climate information at the Tokyo Climate Center of the Japan Meteorological Agency.

Yet extreme heat is often omitted from disaster prevention plans, although many experts believe that heatstroke is preventable and

there are relatively simple steps we can take to help those at risk.

It's not high temperatures on their own that kill people during heatwaves. With heat, inequality and isolation are fatal. And in some cases they're bedfellows, as inequality can reduce interaction.

A sense of community is out of reach even for some of the people who sleep outside next to each other in the world's largest city. A number of the men who live on the streets around Tokyo's Shinjuku station say that they don't speak much to each other.

"There's no communication whatsoever," says Mr. Koyama, a spry, petite 66-year-old who sleeps on cardboard. He says there are people who die on the streets without others noticing.

Like a number of other people, Koyama has the double physical stressors of sleeping outside, without cooling devices, and doing outside work as well. Three days a week he rakes leaves in a garden during the hottest part of the day, for ¥7,000 (approx. $52).

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Despite the challenges, Koyama is cheerful. He likes being surrounded by trees at work, and when he needs to cool off during the day he can go to a park or sit on an air-conditioned train.

And though he doesn't have a phone or much connection with others sleeping rough, he feels somewhat looked after, as one volunteer group or another comes around most days.

Yet in his 15 years of homelessness, he's noticed that it's getting warmer. "In the old times, there were four seasons. But these days, it seems like spring and fall are shorter."

It's hard to get enough rest under such conditions. Heat and sleeplessness are linked in a vicious circle: insufficient sleep is a risk factor for heat-related illness, and increases the risk of injuries on the job, while heat disrupts both the quality and quantity of sleep.

For people like Koyama, poverty and isolation are clearly linked. The reasons are complex, but include stigma and the lack of a secure footing to maintain relationships.

That's true for Miwa Kazuo as well, who is currently staying at a shelter. He doesn't have an air conditioner or a place to put it, and would be reluctant to call for an ambulance if he needed it, due to being uninsured. "I don't have anyone, even at the shelter," Kazuo says. He doesn't talk to other residents.

Ms. Tsutsumi in Shinjuku, Tokyo. CHRISTINE RO

Koshigaya-based paramedic Osamu Tadachi says that he has heat-related callouts for people of all income levels. The commonality seems to be an impaired ability to take care of health – and a lack of others to care for them.

The link between poverty and isolation exists even for people who have stable housing, if its quality is poor.

Ms. Tsutsumi illustrates this. The 73-year-old loves epic samurai movies and a public bathhouse in the Ueno neighborhood, an hour from her home. She travels to her favorite bathhouse because it opens early and she has no shower or bath at home.

Lots of other things are lacking about her home, an old second-floor walk-up apartment. It gets extremely hot, so she has to keep the air conditioning on all the time. Otherwise, within an hour of turning it off in the morning, the temperature can reach 40°C inside. “It’s dangerous if I cut it off,” Tsutsumi explains.

Amid rising energy costs and dire warnings about Japan’s energy supply running low, some people have been scrimping on other necessities. Tsutsumi acknowledges, “It’s scary to see the utility bills but it’s also scary to get heatstroke.” She’s worried about this because her building doesn’t have an elevator, and she can feel her strength waning more each year, even with small tasks like taking out the garbage. In June, during Tokyo’s longest-ever heatwave, she sometimes felt dizzy as soon as she got up.

Overall, the near draining of the energy supply this summer has shown that Japan isn’t fully prepared for long heatwaves and the associated energy demands, despite the rising of temperatures each year.

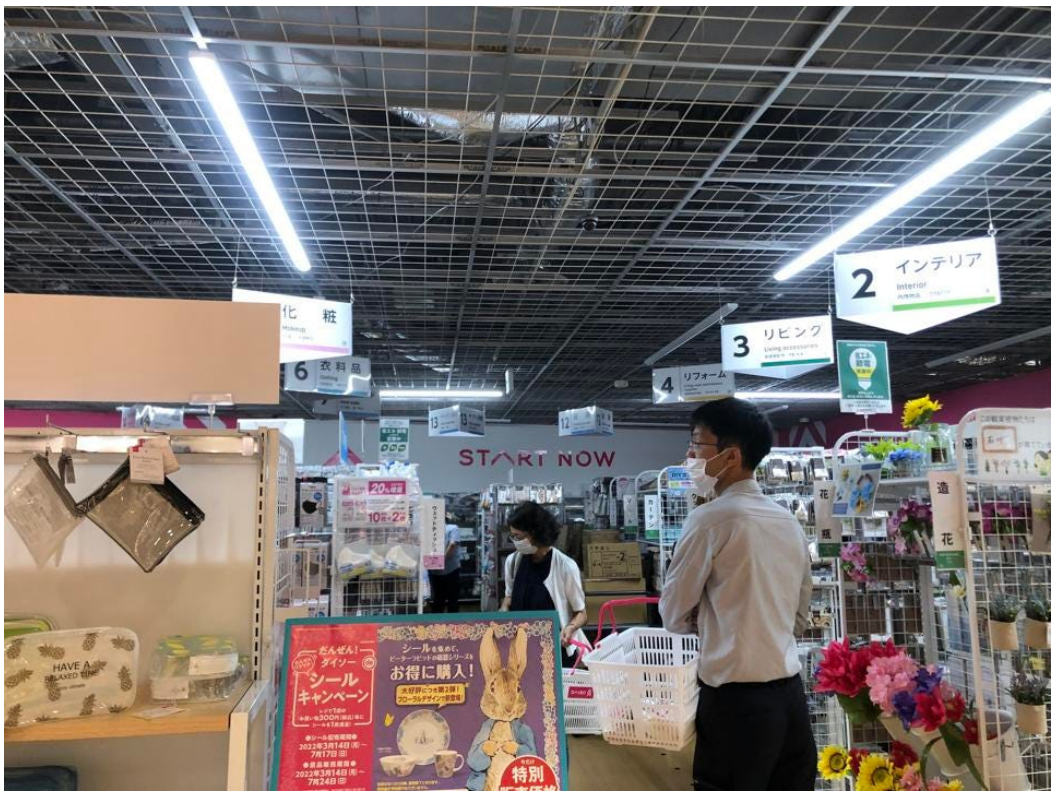
At the individual level, one risk consultancy is advising clients operating in Japan to keep battery-powered devices charged in case of

long electricity outages. At the institutional level, energy suppliers are rethinking how they prepare for peaks in demand.

The situation has also sparked more conversation about energy independence and the role of nuclear power within Japan's energy mix – a very contentious issue in this nuclear-scarred country.

According to Benjamin McLellan, who researches energy at Kyoto University, "the energy security issue is particularly dire" in Japan. Only a small portion of its energy, about 15%, is produced domestically. Japan's plans for energy security depend on hydrogen, McLellan said in a Daiwa Foundation webinar.

Ideally the rising energy bills and temperatures would encourage policymakers to better support low-income people like Tsutsumi who are struggling to pay the bills. (In the US, policies preventing utility disconnections during periods of extreme heat would be lifesavers.)



A store with dimmed lights amidst an energy crunch in Akihabara, Tokyo. CHRISTINE RO

Tsutsumi is worried about falling, with no one to look after her. The Fukuoka native has no relatives in Tokyo, where she's had to get used to the high humidity. "When I moved here I realized the heat is so different," she says. She never had to use the air conditioning back home – but of course, she was younger then as well.

Tsutsumi worked on assembly lines and other various jobs, where she experienced heatstroke on the job. She found it hard to retrain after getting laid off at the age of 56, and now relies on charitable organizations like Moyai, which distributes food for free.

What will ultimately make a difference to her heat exposure is improved living conditions. She says that older tenants have limited rental choices in Japan, as many landlords don't want to deal with them. She's asked for help with improved housing through Habitat for Humanity.

While she hopes to eventually move to an apartment that doesn't require her to navigate stairs or make difficult choices between paying energy bills and buying other necessities, one advantage Tsutsumi has is a willingness to use air conditioning, no matter the costs. That's not true for every vulnerable person.

According to the Climate Change Adaptation Information Platform at Japan's National Institute for Environmental Studies, in Osaka Prefecture in 2018, over 90% of people who died indoors from heatstroke weren't using air conditioning at the time. (Almost half didn't have air conditioning at all. Most also had their windows closed.)

There was a similar pattern in Tokyo, where 70% of people who died from heat alone in Tokyo also lived alone.

In other words, people are roasting alone in their homes. Older people often have a hard time sensing heat and thirst levels, and medication and mental health conditions also limit the ability to take action when overheating. Regular home checks could help ensure that windows are being opened and cooling devices, where they exist, are being used when needed.

To do just that, there are programs in Canada, the US, and other countries that organize home visits to seniors by volunteers or public workers. Even better than formal programs are informal check-ins; after all, friends, neighbors, and relatives are better able to tell if

someone is getting disoriented from the heat or if their habits are likely to expose them to dangers.

Heatstroke prevention flyer asking people to check in on others around them. CHRISTINE RO

In Kumagaya, which has a reputation for being Japan's hottest city, I speak with a man in his 60s who works part-time checking for improperly parked bikes around the train station. His shift finishes at 10:30, before the heat peaks, and when he goes home during hot periods he immediately turns on the air conditioning.

Laughing, he explains that this is because his friends in relatively cool Hokkaido call him up and nag him about using air conditioning, after seeing news reports that mention weather conditions in Kumagaya.

Not everyone has friends willing to do wellbeing checks over the phone, however informal. In Tokyo's Ota Ward, social workers have found that relatively small gestures can help break through the social isolation that can lead to people over 65 dying lonely deaths while confined indoors (whether due to health reasons, social isolation, or lack of transport). After all, people who rarely venture out are unlikely to see the many heatstroke warnings plastered, however irregularly, in public space.

Heatstroke warning on community bulletin board. CHRISTINE RO

One way that the Ward seeks to raise awareness of the dangers of heat is by distributing wet wipes, oral rehydration solution, and paper fans. These aren't enough on their own, but they give social workers a useful point of entry to assess home heat conditions. "The problem is, however, the ward can only keep track of users of the ward facilities, such as a comprehensive support center or the ward office, who are considered a high-risk group," acknowledges Shinichi Ikegami, from the Senior Welfare Department in Ota Ward. "The challenge is to seek a way to gain contact with other senior citizens who do not cross paths."

Though they're imperfect, around the world, such programs can be a lifeline. But many people may not know of government and community programs to address heat, as in New York. Or people may not feel that the programs are relevant to them – like the British seniors who feel that other people, but not themselves, are the ones at risk.

Thankfully, Tsutsumi is registered with a caseworker and has been mulling over accepting this kind of help. She's read about a program where sanitation workers check in on those who receive referrals from caseworkers.

After all, sanitation workers – even if they don't always have a personal connection with the people whose trash they collect – reach every part of a city. "We are the guardians of the neighborhood," believes Takayuki Sakabe, the vice-president of the Tokyo Sanitation Workers' Union.

Though it could add to their workload, Sakabe believes that sanitation workers need to expand these kinds of check-in programs as part of their duties to the community.

"I thought about it for a while and finally decided to do it," Tsutsumi says of registering for the sanitation worker check-ins. More of these helping hands will need to be extended and welcomed as temperatures continue to rise around the world.

Ultimately, what's needed are holistic and imaginative approaches to curbing temperature rise as well as adapting to it. But these would also incorporate means of reducing social isolation.

Toshio Otsuki's work suggests one vision for this. The University of Tokyo architecture professor draws on his experience of designing post-disaster temporary housing to explore how fostering intergenerational community spaces can encourage neighbours to look in on each other, and reduce the likelihood of people dying alone.

For instance, he designed a site in Tono City with a "care zone" making up 30% of the area. This corresponded roughly to the proportion of over-65s. The care zone included a shared footpath that allowed people to see, for instance, if lights were on in others' homes.

"When you make this kind of communal footpath, it will become a kind of neighbours' living room," Otsuki believes. "They can softly watch over the neighbours." At the same time, he acknowledges that younger people might have more privacy concerns, and prefer to live outside of the care zone.

These kinds of architectural nudges are especially important to reach men, who are more likely to be socially isolated. "Men rarely come out to socialize," Otsuki notes. But he gives the example of a shared laundry room where elderly men were essentially forced to start

chitchatting while waiting for their clothes. “Small communication space is essential,” says Otsuki. (People who work with elderly men in other countries have said that spontaneous, unstructured activities can help to draw out socially reluctant men.)

These lessons can be applied to permanent, non-communal housing as well. Otsuki describes a project during the pandemic where people volunteered to have public benches installed in front of their homes to encourage social interaction. Because they participated from the beginning, they were very engaged and eventually curious about how the benches were being used.

The benefits are still somewhat speculative when it comes specifically to heat-related deaths in Japan, but Otsuki believes that community-centered design that encourages people to get to know each other’s routines can help safeguard each other during extreme heat. It’s a different kind of vision for a heat-adapted city, and perhaps a necessary one.

The other article in this series addresses social norms and extreme heat.

Reporting for this article was supported by the Social Science Research Council and the Japan Foundation Center for Global Partnership, through the Abe Fellowship for Journalists. This story was reported with Chie Matsumoto.

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