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Addressing chronic noncommunicable diseases is essential to strengthen urban resilience to communicable pandemic diseases

Ishu Kataria^a and Angela M. Jackson Morris^b

^aSenior Public Health Researcher, Global Center for Noncommunicable Diseases, RTI International, New Delhi, India; ^bSenior Global Health Specialist, Global Center for Noncommunicable Diseases, RTI International, Seattle, WA, USA

ABSTRACT

The COVID-19 pandemic has exposed the fragility and vulnerability of urban systems and populations across the world. Yet while the infection is the focus of attention, the chronic noncommunicable diseases that affect large and increasing parts of urban populations create significant underlying vulnerability and augment the damaging consequences of COVID-19. People with noncommunicable diseases are experiencing the greatest mortality, hospitalization, and intensive care requirement, whereas protection, prevention and reduction measures are underdeveloped and insufficient. The COVID-19 experience in cities globally has highlighted specific needs and gaps, as well as opportunities to 'future-proof' cities against the additional vulnerability of noncommunicable diseases.

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Background

More than 60% of the world's population is projected to be urban-dwelling by 2030, with maximum growth to occur in low- and middle-income countries (Global Health Observatory 2000). The COVID-19 pandemic has exerted immense pressure on cities to employ strategies to keep residents safe, healthy, sustain livelihoods and maintain essential services, and has highlighted the fragility and vulnerability of urban systems even in well-resourced, high-income countries. The immediate priority has been to prevent virus transmission and treat cases. Yet neglect of the prevalent underlying vulnerability of urban populations who have noncommunicable diseases (NCDs), such as cardiovascular disease, diabetes, and respiratory disease, prior to and during the pandemic has magnified the severity and scale of COVID-19.

People living with NCDs (PLWNCs) comprise large and increasing proportions of urban populations across countries of all income groups (Upadhyay 2012). This is of major significance because PLWNCs across all countries are experiencing the highest mortality, hospitalization, and intensive care admissions from COVID-19 (Kluge *et al.* 2020). Major NCD risk factors have been found to entail significant additional risk of developing severe COVID-19 and poor outcomes. People who have obesity and become infected with the virus are more likely to become seriously ill, be hospitalized and to die than people of normal weight (Garg *et al.* 2020). Tobacco use has also been found to increase the risk of more complicated, dangerous COVID-19 progression (Patanavanich and Glantz 2020, Van Zyl-Smit *et al.* 2020).

Besides the elevated risk of COVID-19 to city dwellers who have NCDs, health services to treat and support management of their chronic conditions have been considerably reduced during the pandemic, whereas in many LMICs, NCD service provision was inadequate prior to COVID-19 (World Health Organization 2020). Insufficient provision and reduced help-seeking (in the absence of strong guidance and safe provision) have been linked in the initial data to an increase in acute and chronic NCD exacerbations, such as less timely 'heart attack' treatment, postponed chemotherapy and poorer cancer outcomes, and unchecked hypertension and blood glucose increases. Poorly treated and managed NCDs during the pandemic have been forecasted to cause considerable additional preventable deaths and disability. Concerns about a decline in mental health during the pandemic and especially during prolonged lockdowns have been raised (Rajkumar 2020), and this can undermine self-management for other chronic conditions.

We draw upon examples from Indian cities to consider NCD vulnerability to COVID-19 – gaps, unmet needs, measures to address NCD vulnerability, positive avenues for further development, and provide recommendations to strengthen city pandemic resilience (Box 1).

Urban health system adaptations to support during COVID-19 for people living with noncommunicable diseases

Kerala has created an effective surveillance system with focus on vulnerable populations and PLWNCs

Box 1. Recommendations for addressing urban NCD vulnerability to strengthen pandemic resilience.

- i. Evaluate and share NCD related pandemic response best practices among cities to foster tailored adoption and scale-up
- ii. Co-opt NCD expertise to include NCD protection and mitigation measures within national pandemic response packages and planning
- iii. Develop/strengthen data collection to monitor and understand prevalence and distribution of NCDs; strengthen ability to identify and communicate protective/supportive pandemic measures to PLWNCDs; analyze short and longer term COVID-19 impacts in relation to NCDs, and inform future planning
- iv. Identify effective, cost-effective strategies to maintain core NCD treatment and support services during pandemics for example, remote/digital technology, service localization, supply chain contingency planning
- v. Develop/strengthen multi-sectoral coordination mechanisms for NCD management within and between cities and link these to pandemic planning
- vi. Accord higher priority within mainstream urban planning measures to reshape urban spaces and systems to prevent, reduce and manage NCDs in general, and to enable easier pandemic and post-pandemic adaptation

during the pandemic when healthcare access has been challenging. The state has developed and implemented a care protocol for PLWNCDs in all its cities. The foundation of this response are 'ASHA' community health workers, and Anganwadi and *Kudumbashree* neighborhood women's organizations whose role is to ensure that PLWNCDs, especially those below the poverty line, are receiving their monthly medication supplies. Cancer, which has a high disease burden in Kerala has received special government attention. All hospitals have been linked to Regional Cancer Centres for emergency cancer care and medicines are being delivered house-to-house for palliative care patients.

Kerala has also increased the frequency of NCD local centre functioning from one to six days a week. This pro-activity and preparedness have contributed to the state's low COVID-19 fatality rate. Other cities such as Kota in Rajasthan, and Amritsar and Jalandhar in Punjab have used telemedicine to offer remote digital medical consultations and developed a local medication delivery system for PLWNCDs.

Urban food system issues related to noncommunicable diseases

Price rises, scarcity of healthier foods for NCD prevention, particularly fresh produce, have been reported across countries, including India, during the pandemic. There are also indications that consumption of highly processed snacks and drinks from vendors, including food delivery services may have declined as an unplanned impact of lockdown. Some cities have instituted measures to provide basic foodstuffs to people below the poverty line, and some have provided information about public distribution shops; however, examples of proactive measures to address healthy food access and availability are limited. Chandigarh in Punjab provides one example where they organized fruit and vegetable delivery via state transport buses to the resident welfare association, which has acted as a distribution hub.

Enabling physical activity maintenance

Strict lockdowns worldwide have highlighted inequality in access to space and/or digital technology to enable

physical activity maintenance during lockdowns. Well-off residents of more spacious neighborhoods with walkable streets, space at home for exercise, and access to digital classes or apps have been advantaged, whereas people in crowded housing with limited or no outside space have had very limited opportunities to maintain activity, especially when curfews have been in place. Many cities in India lack safe spaces to walk, exercise or play – a long-standing issue, exacerbated during lockdowns when any parks, street space and playgrounds were closed. There are examples of social entrepreneurs using digital technology to encourage physical activity through applications for home exercises and yoga while confined at homes. However, the reach of such innovations is limited to people with digital access, and space.

Mitigating adverse mental health impacts during lockdown

There are few reported examples of official efforts to support mental wellbeing in Indian cities within their COVID-19 response. Pune in Maharashtra provides one example, where public Wi-Fi coverage was extended to quarantine centers to help combat stress, depression, and anxiety among quarantined patients. The Indian non-governmental sector started 'Let's talk', a volunteer-run mental health helpline to support people during the pandemic, partnering with other organizations, state governments and civil society. Meeting the scale of urban need as the pandemic proceeds will require further such innovations.

Restricting access to risk factor substances

During the pandemic, the Government of India took one of the most radical pandemic tobacco control measures globally, requesting that all states and union territories (UTs) ban tobacco sale and use in public places. This was based on the association between tobacco use and COVID-19 susceptibility, as well as a strategy to limit footfall in public places. Twenty-two states and six UTs banned use and all cities in 10 states/territories penalized tobacco spitting. However, as lockdown

eased the ban was rescinded and sale of tobacco and smoking in public places resumed.

With similarity, alcohol was designated a non-essential commodity during lockdown and sale was banned. However, the measures for tobacco and alcohol – substantial revenue generation commodities – were short term in many cities. Some states were able to reopen alcohol shops during the second stage of lockdown. Moreover, while restricted availability could reduce the harmful consumption that is associated with various NCDs and social problems, the requisite support for people reducing consumption was lacking and it is unlikely to achieve sustainable, long-term impact.

Air pollution

During the pandemic, a beneficial environmental impact occurred with significance for reducing an important urban risk factor for major NCDs. Air pollution levels dropped in some of India's most polluted cities, including by 60% in Delhi. However, access to cleaner air was circumscribed by measures limiting access to playgrounds, sports grounds, and parks. The short-term benefit has been measurable, and the key for NCD prevention will be policies to sustain this.

The COVID-19 pandemic has highlighted the vulnerability of large city populations living with NCDs. It has generated important learning about the needs of PLWNCDs, gaps, and avenues to address these in cities, and created some tangible improvements that may be harnessed to reduce NCDs in the future. The challenge to city leaders, planners, and citizens will be to capitalize on the lessons from COVID-19, starting with sharing and evaluating initiatives. This can inform integration of action to reduce and manage NCDs within pandemic preparedness planning, as well as according NCDs priority within wider city strategies and budgets that reflects their prevalence and impacts.

Disclosure statement

No potential conflict of interest was reported by the authors.

Notes on contributors

Dr Ishu Kataria works on noncommunicable disease (NCD) prevention and control both in India as well as globally. She has experience in conceptualizing and developing interventions, capacity building initiatives, and designing and implementing programs on NCDs, including

cancer prevention, adolescent NCDs, and behavior change communication. Ishu has served as a Special Advisor to the World Health Organization for NCDs and is the NCD focal point for the United Nations Major Group for Children and Youth. She also co-chairs the recently established Youth Coalition on NCDs. Ishu is currently a Senior Public Health Researcher with the Center for Global NCDs at RTI International.

Dr Angela M. Jackson Morris has been working to create better health across a range of countries and sectors for over twenty years, particularly to reduce and prevent noncommunicable diseases (NCDs). Angie's expertise is in designing and guiding strategies, policies, programs, and capacity development, in co-production with local and global partners, and underpinned by formative and implementation research. Angie is currently Senior Global Health Specialist with the Center for Global NCDs at RTI International, and previously has worked internationally and with national governments in countries including Saint Helena, Republic of Maldives, India, and the United Kingdom.

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