Journal of Epidemiology and Global Health (2016) 6, 119–121

HOSTED BY

ELSEVIER

http:// www.elsevier.com/locate/jegh

Addressing non-communicable diseases in disaster risk reduction — an issue of equity

Sam Gnanapragasam [a,*], Amina Aitsi-Selmi [b], Elaine Rashbrook [c], Virginia Murray [b]

[a] GKT School of Medical Education, King's College London, Academic Centre, 1st Floor, Henriette Raphael Building, Guy's Campus, London SE1 1UL, United Kingdom
[b] Public Heath England, Wellington House, 133–155 Waterloo Road, London SE1 8UG, United Kingdom
[c] Public Heath England, Skipton House, 80 London Road, London SE1 6LH, United Kingdom

Received 17 September 2015; received in revised form 19 February 2016; accepted 22 February 2016
Available online 19 March 2016

KEYWORDS
Disaster risk reduction (DRR);
Non-communicable diseases (NCDs);
Health equity

Abstract The issues raised by noncommunicable diseases (NCDs) during and after disasters are a challenge to equity within local communities, as well as between countries. Individuals with NCDs are particularly vulnerable in disasters and their aftermath given health systems are disrupted. Although welcome progress has been made in taking NCDs and equity into account in the UN General Assembly ratified agreement, the Sendai Framework for disaster risk reduction 2015–2030, there is need now for a clear plan of implementation.

Noncommunicable diseases (NCDs) are a major global public health threat. As the leading cause of death, they account for 65.5% of mortality [1] and 54% of disability-adjusted life years globally [2]. The danger posed by NCDs to population health is further heightened during disasters. The growing recognition that NCDs are important to health and development, as reflected in their inclusion in Goal 3 of the sustainable development Goals, is an opportunity for synergy between disaster risk reduction (DRR), sustainable development, and health [3].

NCDs in disasters are a challenge for global health equity. Almost three quarters of all NCD related mortality occur in low- and middle-income countries (LMICs) [4]. The challenges posed by NCDs are projected to be ever-growing in LMICs, as more countries make nutrition and disease transitions in the context of globalization. Further, the increase in NCDs is not only limited to the countries

* Corresponding author at: GKT School of Medical Education, King's College London, Academic Centre, 1st Floor, Henriette Raphael Building, Guy's Campus, London SE1 1UL, United Kingdom.
E-mail address: sam.gnanapragasam@doctors.org.uk (S. Gnanapragasam).
Peer review under responsibility of Ministry of Health, Saudi Arabia.

http://dx.doi.org/10.1016/j.jegh.2016.02.005

undergoing demographic changes with aging populations, but is also affecting young populations due to more sedentary lifestyles and the resultant obesity epidemic. At the same time, LMICs face a greater burden of natural disasters (frequency and intensity), climate change sequelae, and wider disaster hazards relative to high income countries [5] as a result of relatively weak national health systems, higher levels of absolute and relative poverty, rapid urbanization, and associated planning deficiencies, as well as less adequate early warning systems.

Inequity does not only exist between high income countries and LMICs, but is also within local communities. Vulnerable groups include those from lower socioeconomic groups, the homeless, the disabled, those requiring chronic care, women, and the very young and old [6]. For example, individuals from lower socioeconomic groups often have insecure livelihoods, lack economic and social welfare safety nets, live in areas at heightened risk of disaster, and are less likely to evacuate when requested [5]. As such, vulnerable groups are simultaneously more likely to be inadequately managed for chronic conditions [6] and more susceptible to the adverse effects of disasters [7].

NCDs in disasters can entrench, exacerbate, and cause further health disparities. Following disasters, public health infrastructures become overwhelmed by acute injuries and immediate disaster relief needs, such as those related to infectious disease and maternal/child health. As a result, chronic conditions may remain untreated and those with chronic conditions can experience acute exacerbations and increased mortality, and a worsened long-term prognosis. For example, disrupted dialysis provision following the 2005 Kashmir earthquake led to significant health consequences among chronic renal disease patients [8].

Additionally, conditions that were previously managed with little or no impact on activities of daily living may deteriorate on account of reduced access to care and/or medication loss [9]. For example, exacerbation of rheumatoid arthritis debilitates patients and causes wider social disruptions including loss of income and security [10]. Such a reduced functional capacity, particularly at a time of heightened physical, social, and mental stress postdisaster can in turn adversely impact on livelihoods and as a result, entrench individuals in poverty and exacerbate inequity [5]. Given this, mitigating against the impact of NCDs in the context of disasters can improve the long-term economic outlook for both the individual and community (supporting postdisaster economic recovery and maximizing tax revenue for subsequent reinvestment into public sector services/infrastructure). There is a need for further research to explore how NCDs impact inequities postdisasters in the short and longer term.

Policy implications

In line with the public health adage that ''prevention is better than cure'', significant efforts around DRR are currently underway. The approach of DRR is captured in the recently adopted UN landmark agreement, the Sendai Framework for disaster risk reduction 2015–2030. This framework makes an important contribution to global development and health policy by recognizing that the impact of disasters on lives and livelihoods is influenced by a combination of physical, social, economic, and environmental factors [11] – which are also social determinants of health [12]. The Sendai Framework calls for a systematic, transdisciplinary and multisectoral approach to reduce risks from disasters by limiting exposure to hazards, decreasing vulnerability of people and property, appropriately managing the land and built environment (such as through urban planning), and improving preparedness and early warning systems [11].

Relevant policy statements from the Sendai Framework [11] include: *(1) people with life-threatening and chronic disease, due to their particular needs, should be included in the design of policies and plans to manage their risks before, during, and after disasters, including having access to life-saving services; (2) to enhance recovery schemes to provide psychosocial support and mental health services for all people in need; and (3) core dedicated action needs to be focused on tackling underlying disaster risk drivers, such as the consequences of poverty and inequality.*

Statements 1 and 2 are of importance for NCDs in the Sendai Framework. The significance of inequity is also noted – Statement 3. This is welcome since ''NCDs/chronic disease'' and ''ineq uality/inequity'' were absent from its predecessor-the Hyogo Framework for Action 2005–2015 [13]. There is strong focus throughout the Sendai Framework for action across local, national, regional, and international levels based on scientific and technical evidence, to reduce risk across influencing factors. This enabling approach can help facilitate action locally (inequities within countries) and even globally (inequities between countries). In the development of the implementation plan for the Sendai Framework, there is an opportunity to turn this vision into a reality across both local and global

communities by clarifying whose remit tackling inequity in disaster risk distribution comes under, what measures will be used to monitor progress on this issue, and the specific sources of funding.

A clear and coordinated action plan tackling the challenges posed by NCDs before, during, and after disasters will help to mitigate the heightened burden of risks currently on LMICs and among their vulnerable populations.

Conflicts of interest

The authors have no conflict of interest to declare.

References

[1] Lozano R, Naghavi M, Foreman K, Lim S, Shibuya K, Aboyans V, et al. Global and regional mortality from 235 causes of death for 20 age groups in 1990 and 2010: a systematic analysis for the Global Burden of Disease Study 2010. Lancet 2013;380:2095—128.

[2] Murray CJ, Vos T, Lozano R, Naghavi M, Flaxman AD, Michaud C, et al. Disability-adjusted life years (DALYs) for 291 diseases and injuries in 21 regions, 1990—2010: a systematic analysis for the Global Burden of Disease Study 2010. Lancet 2013;380:2197—223.

[3] United Nations. United Nations Sustainable Development Goals to end poverty, protect the planet, and ensure prosperity for all 2015—2030. Available at: <http://www.un.org/sustainabledevelopment/sustainable-development-goals>; 2015 [accessed 03.03.16].

[4] World Health Organization. Global status report on non-communicable diseases 2014. Geneva: WHO; 2014.

[5] Demaio A, Jamieson J, Horn R, de Courten M, Tellier S. Non-communicable diseases in emergencies: a call to action. PLoS Curr 2013;5:5.

[6] Blaikie P, Cannon T, Davis I, Wisner B. At risk: natural hazards, people's vulnerability and disasters. Routledge; 2014.

[7] Di Cesare M, Khang Y-H, Asaria P, Blakely T, Cowan MJ, Farzadfar F, et al. Inequalities in non-communicable diseases and effective responses. Lancet 2013;381:585—97.

[8] Miller AC, Arquilla B. Chronic diseases and natural hazards: impact of disasters on diabetic, renal, and cardiac patients. Prehosp Disaster Med 2008;23:185—94.

[9] Ochi S, Hodgson S, Landeg O, Mayner L, Murray V. Disaster-driven evacuation and medication loss: a systematic literature review. PLoS Curr 2014;6.

[10] Tomio J, Sato H, Mizumura H. Impact of natural disasters on the functional and health status of patients with rheumatoid arthritis. Modern Rheumatology 2011;21:381—90.

[11] United Nations Office for Disaster Risk Reduction. Sendai framework for disaster risk reduction 2015—2030. 2015.

[12] Marmot M, Wilkinson R. Social determinants of health. Oxford University Press; 2005.

[13] United Nations Office for Disaster Risk Reduction. Hyogo framework for action 2005—2015: building the resilience of nations and communities to disasters. 2005.