



Tehran University of Medical
Sciences Publication
<http://tums.ac.ir>

Iran J Parasitol

Open access Journal at
<http://ijpa.tums.ac.ir>



Iranian Society of Parasitology
<http://isp.tums.ac.ir>

Letter to the Editor

Neglected Tropical Diseases in Pakistan: A Story of Neglect

Aisha KHAN¹, Mehreen TARIQ¹, Sami SIMSEK², Muhammad Sohail AFZAL³, Majid FASIHI HARANDI⁴, Shahzad ALI⁵, Rana Muhammad Kamran SHABBIR⁶, *Haroon AHMED¹

1. Department of Biosciences, COMSATS University Islamabad (CUI), Park Road, Chakb Shahzad, Islamabad, Pakistan
2. Department of Parasitology, Faculty of Veterinary Medicine, University of Firat, Elazig, Turkey
3. Department of Life Sciences, School of Science, University of Management and Technology, Lahore, Pakistan
4. Research Center for Hydatid Diseases in Iran, Department of Medical Parasitology, Kerman University of Medical Sciences, Kerman, Iran
5. Wildlife Epidemiology and Molecular Microbiology Laboratory, Department of Wildlife & Ecology, University of Veterinary and Animal Sciences, Lahore, Ravi Campus, Pattoki, Pakistan
6. Department of Zoology, Faculty of Biological Sciences, Quaid-i-Azam University, Islamabad, Pakistan

Received 08 Aug 2020
Accepted 19 Aug 2020

*Correspondence Email:
haroonahmed@comsats.edu.pk

Dear Editor-in-Chief

The foremost information about the world's major communicable and non-communicable diseases (NCDs) has been generated by the Global Burden of Disease Study (GBD) regarding the incidence, morbidity, prevalence and mortality. The gradual increase of the NCDs especially among the world's low- and middle-income countries urge the need of research (1). However, with reference to the neglected tropical diseases (NTDs), the GBD has confirmed a

high disease burden for the major NTDs prioritized by WHO (2).

NTDs are group of communicable diseases that are prevalent in 149 countries. In 2017, NTDs were updated by WHO and now it has 20 diseases on the list. The Islamic Republic of Pakistan is the second largest Muslim and the fifth most populous country in the world. Pakistan's burden of NTDs is quite high. Since almost 60% of Pakistani population lives in rural areas where major NTDs are widespread (3). Pakistan shares the world's highest



Copyright © 2020 Khan et al. Published by Tehran University of Medical Sciences.
This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International license
(<https://creativecommons.org/licenses/by-nc/4.0/>). Non-commercial uses of the work are permitted, provided the original work is properly cited.

burden of four NTDs, which includes leishmaniasis, leprosy, trachoma and soil-transmitted helminthiasis. In 2015-2016, more than 50,000 new cases of cutaneous leishmaniasis (CL) were reported (4).

Other NTDs that are prevalent in Pakistan but have not been reported to WHO until now. These NTDs include chikungunya, rabies, dengue and cystic echinococcosis (CE). More than 30,000 cases of chikungunya were reported in Karachi during 2017 (5) while if these cases were reported from all over the Pakistan the number of cases would increase much drastically. Rabies also remains a major NTD. Due to lack of awareness, many people use home remedies for rabies instead of proper treatment. Its persistence remains due to lack of vaccines availability in Pakistan. Ninety-one deaths have been reported in 2009-2016. Overall, 150 cases of dog bites occur per day in Karachi. The cases of dog bites at Indus Hospital had risen from 1,789 in 2012 to 5,500 in 2017 (6). CE is another neglected and endemic disease in Pakistan; approximately 1611 cases (1990-2018) have been reported in Pakistan (7).

In 2019, 47,120 confirmed cases of dengue and 75 deaths have been reported by the health authorities in Pakistan. In response to dengue outbreak WHO provided assistance to combat this disease. The three major areas of focus by WHO are social awareness, management and vector-borne control of dengue (8). In 2016, prevalence of NTDs in Pakistan was as ascariasis (13.1%), cystic echinococcosis (0.1%), hookworm infection (1.2%), trichuriasis (1.0%), cutaneous leishmaniasis (0.2%), blinding trachoma (0.1%), and leprosy (0.1%) (9).

NTD's in Pakistan are not evenly distributed but are more common in rural areas. The major factor is poverty due to which people live in backward rural areas where they even do not have basic amenities. The majority of NTDs in Pakistan are transmitted through the fecal-oral route because of poor sanitary practices. By improving the basic amenities in rural

areas, the high burden of diseases can be lowered.

However, over the years, Pakistan is making progress regarding NTDs. It is far better than many countries. The number of leprosy cases has dropped to 377 from 551 from 2005 to 2102 and is 0.2% of world cases. It is controlled due to Dr. Ruth Pfau who served her life in treating leprosy patients in Pakistan. WHO estimated, more than 22 million children required deworming for intestinal helminths received preventive chemotherapy (10).

Sustainable Development goals (SDGs) were started in 2012 that replaced Millennium Development Goals (MDGs). The prime objective of SDGs is to meet the economic, political and environmental challenges. Pakistan has committed to SDGs, which will enable it to join the league of upper-middle-class countries by 2030. This is a huge step forward and will allow Pakistan to better combat the burden of diseases. Together Pakistan can fight these diseases by contributing its focus towards the global health and development sector along with making new cutting NTD technologies.

The main challenges in control and elimination of NTDs in Pakistan is the unavailability of new and improved vaccines for dengue and urbanized hookworm infection. Moreover, there is a need for new biotechnologies in Pakistan so that it can better prevent NTDs (10). Different disease specific technologies like drugs, vaccines, diagnostics, and vector control agents can be used to fight NTDs in Pakistan.

Fortunately, Pakistan will be the world's fifteenth largest economy in 2050. Such economic advancements can be made useful to decrease the burden of the NTDs in Pakistan. These discussions are necessary since NTDs can affect Pakistan's economy by reduced productivity and child's cognitive growth.

Conflict of interest

The authors declare that there is no conflict of interest.

References

1. Vos T, Abajobir AA, Abbafati C, et al. GBD 2016-Disease and Injury Incidence and Prevalence Collaborators. Global, regional, and national incidence, prevalence, and years lived with disability for 328 diseases and injuries for 195 countries, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016. *Lancet*. 2017;390(10100):1211-1259
2. Herricks JR, Hotez PJ, Wanga V, et al. The Global Burden of Disease study 2013: What does it mean for the NTDs? *PLoS Negl Trop Dis*. 2017;11(8):1-21.e0005424.
3. The World Bank Data: Rural Population (% of total population). Pakistan (2018). <https://data.worldbank.org/indicator/SP.RUR.TOTL.ZS?locations=PK>
4. Anonymous. Leishmaniasis- a neglected, global disease of marginalised people. A summary report from the Leishmaniasis Gap Analysis Report and Action Plan carried out in Albania, Jordan and Pakistan 2015. <https://endingpandemics.org/wp-content/uploads/2016/12/Final-summary-report-leishmaniasis.pdf>
5. Rauf M, Fatima-Tuz-Zahra, Manzoor S, et al. Outbreak of Chikungunya in Pakistan. *Lancet Infect Dis*. 2017;17(3):258.
6. Ilyas F. Anti-rabies project launched in Karachi. *Dawn News*. 2018. <https://www.dawn.com/news/1382541>
7. Khan A, Ahmed H, Budke CM. Echinococcosis in Pakistan: a call for research. *Lancet Infect Dis*. 2019;19(6):581.
8. WHO. WHO EMRO Dengue Fever Programmes Pakistan. 2011. <http://www.emro.who.int/pak/programmes/dengue-fever.html>
9. Blum AJ, Majid MF, Hotez PJ. Pakistan: A nation held back by NTDs. *PLoS Negl Trop Dis*. 2018;12(10):e0006751.
10. WHO. Neglected Tropical Diseases. PCT Databank. Soil-transmitted helminthiasis. 2018. http://www.who.int/neglected_diseases/preventive_chemotherapy/sth/db/?units=minimal®ion=EMR&country=pak&countries=pak&year=2016