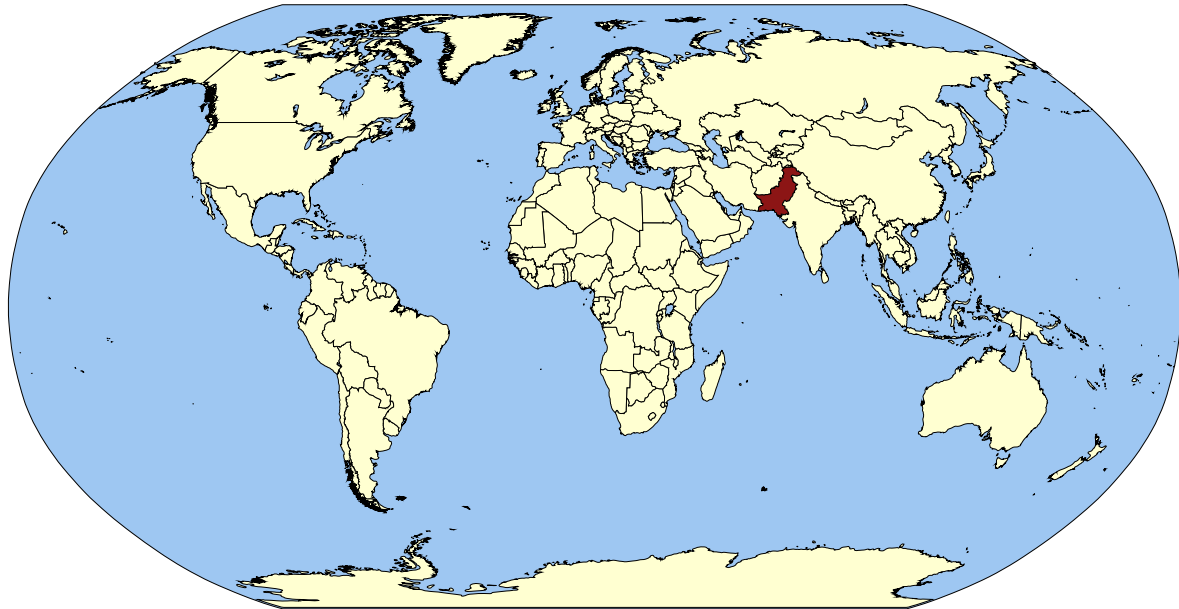


Pakistan



The History of Schistosomiasis in Pakistan

Pakistan is a South Asian country, bordering the Arabian Sea. Though travelers have presented isolated cases and Rollinson et al.'s comprehensive paper outlining worldwide schistosomiasis prevalence listed Pakistan's 2010 prevalence at <10% [4], based on the WHO's weekly epidemiologic record [5], human schistosomiasis is not likely to be endemic in Pakistan. The disease's absence has been explicitly asserted in the literature [1,2,3]. Isolated cases have been observed in travelers from Nigeria and Malawi [6,7]. The latter case led authors to conclude that schistosomiasis endemicity is possible in Pakistan due to the following risk factors: frequent travel to and from endemic countries by its citizens, the presence of Biomphalaria snails, and construction of dams and irrigation canals [2].

Schistosomiasis in Pakistan [5]

Human schistosomiasis is not likely to be endemic in Pakistan

Overview of Pakistan [11]

- » Population in 2015: 199,085,847
- » Official Languages: Urdu and English
- » Capital: Islamabad
- » Federal Presidential Republic
- » Percentage of Population with Access to Improved Drinking Water in 2015: 91.4%
- » Percentage of Population with Access to Improved Sanitation in 2015: 63.5%

Prevalence of Schistosomiasis in Pakistan

A survey of 20,000 cattle and buffaloes in northeastern Pakistan found 7-21% prevalence of infection with the animal schistosomes, *S. indicum* and/or *S. bovis* [7], while another survey of schistosomes in buffaloes showed prevalence of 13.6% to 17% in four districts of the eastern Punjab region [8]. The animal-schistosome host snails that have been found in Pakistan include *Bulinus* spp. and *Indoplanorbis*, some of which are infected with *Schistosoma bovis* [9,10].



References

1. Naus, C. W., Jones, F. M., Satti, M. Z., Joseph, S., Riley, E. M., Kimani, G., ... & Dunne, D. W. (2003). Serological responses among individuals in areas where both schistosomiasis and malaria are endemic: cross-reactivity between *Schistosoma mansoni* and *Plasmodium falciparum*. *Journal of Infectious Diseases*, 187(8), 1272-1282.
2. Subhani, F., Nizamuddin, R., Qasim, A., Idrees, N., Ahmed, I., Nizami, S., ... & Beg, M. A. (2014). The emerging threat of schistosomiasis spread in Pakistan. *Tropical biomedicine*, 31(1), 118-121.
3. Wiwanitkit, V. (2005). Overview of clinical reports on urinary schistosomiasis in the tropical Asia. *Pakistan Journal of Medical Sciences*, 21(4), 499.
4. Rollinson, D., Knopp, S., Levitz, S., Stothard, J. R., Tchuente, L. A. T., Garba, A., ... & Utzinger, J. (2013). Time to set the agenda for schistosomiasis elimination. *Acta tropica*, 128(2), 423-440.
5. WHO (2011). Schistosomiasis number of people treated 2009. *Wkly Epidemiol. Rec.* 86, 73-80.
6. Khalid, S. E., & Mahmood, S. M. (2001). Schistosomiasis--a viable differential for haematuria in travelers in Pakistan. *JPMA. The Journal of the Pakistan Medical Association*, 51(9), 325-327.
7. Anwar, A. H., & Gill, S. A. (1990). A study on ecology of schistosomiasis in cattle and buffaloes. *Pakistan Veterinary Journal*, 10(2), 86-87.
8. Arshad, G. M., Maqbool, A., Qamar, M. F., Bukhari, S. M. H., Hashmi, H. A., & Ashraf, M. (2011). Epidemiology of Schistosomiasis in buffaloes under different managemental conditions in four district of Punjab, Pakistan. *JAPS, Journal of Animal and Plant Sciences*, 21(4), 841-843.
9. Arshad, G. M., Maqbool, A., Qamar, M. F., Bukhari, S. M. H., Hashmi, H. A., & Ashraf, M. (2011). Prevalence and Ecology of Fresh Water Snails in Some Selected Districts of Southern Punjab, Pakistan. *Pakistan Journal of Life and Social Sciences (Pakistan)*.
10. Niaz, S., Akhtar, T., Hasanat, A., & Qureshi, A. W. (2013). Prevalence of snails and Schistosome cercariae and correlation with meteorological factors in Punjab, Pakistan. *Iranian Journal of Veterinary Research*, 14(2), 161-164.
11. The World Factbook. 2013-14 [cited 2015]; Available from: <https://http://www.cia.gov/library/publications/the-world-factbook/index.html>.