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Schistosomiasis more debilitating than estimated

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Public health researchers at Brown University have found that the health burden of an Asian strain of schistosomiasis is much more debilitating than previously thought.

The impact of symptoms associated with schistosomiasis japonica is 7 to 46 times greater than current global estimates, the Brown research team found. This is the first strain-specific study of the global disease burden of schistosomiasis and is part of a growing body of evidence that the serious health effects of this common parasitic disease are far greater than previously estimated.

Results appear in the new journal *PLoS Neglected Tropical Diseases*.

“Schistosomiasis has a detrimental impact on nutrition and growth and development and can lead to major organ damage and death,” said lead study author Julia Finkelstein, a graduate of Brown’s Program in Public Health who is now a graduate student at the Harvard School of Public Health. “Current measures may severely underestimate its disability-related impact of the infection and need to be revised.”

Schistosomiasis is one of the most common infections in the world, infecting an estimated 207 million people in 76 primarily developing countries. Schistosoma parasites are disease-producing flatworms that live in snail-infested fresh water. People get infected from contact with contaminated water through daily activities such as swimming, bathing, fishing or rice farming. The flatworms enter the body through the skin

and travel in the blood, causing symptoms ranging from anemia and diarrhea to internal bleeding and organ damage, and, in some cases, death.

Through its Global Burden of Disease project, the World Health Organization (WHO) estimates the incidence, prevalence, severity and duration of more than 130 major causes of illness, injury and death worldwide. This project is based on a statistical measure called the disability-adjusted life year (DALY), which is the number of years of life lost due to premature death and the years lost due to disability. Policy-makers use the data to help determine funding for prevention and treatment programs as well as research.

According to WHO estimates, the disease burden from schistosomiasis is low, with a 0.005 percent DALY score on a scale of 0 (perfect health) to 1 (death). The global burden of schistosomiasis has not been examined in more than a decade. In just the last few years, however, some researchers have published papers showing that the health burden of schistosomiasis may be greater than expected. The Brown team focused on evaluating Schistosoma japonicum, one of the three main forms of schistosomiasis. The strain is found in China and the Philippines and is the subject of intensive study by Brown faculty members over the last 20 years.

The team used data from the scientific literature and a decision-model approach to re-examine the burden of schistosomiasis. Finkelstein and her team arrived at a substantially higher disability impact for schistosomiasis japonica. Instead of a 0.005 score, they arrived at estimates of 0.098 to 0.186. The findings are consistent with the recently published estimates.

Stephen McGarvey, professor of community health and anthropology and director of the International Health Institute at Brown, is senior

scientist on the project. McGarvey said the findings have important implications for global health policy. He notes that WHO's Global Burden of Disease program, headquartered at the University of Washington, is currently revising its report on global health – and that researchers should reevaluate the disability scores for schistosomiasis and other chronic infectious diseases.

"We've got the best evidence yet that the burden of this disease is significantly underestimated," McGarvey said. "So we urgently need new data – data that can help keep the disease in check by increasing funds for infection control and basic and translational research."

Source: Brown University