

# NAEGLERIA FOWLERI: AN EMERGING ISSUE OF SIGNIFICANT CONCERN IN PAKISTAN

Asif Hanif<sup>1</sup>, Tahira Ashraf<sup>2</sup>

1. **Chief Editor:** Pioneer Journal of Biostatistics and Medical Research. Email ID: [aprofasifhanif@gmail.com](mailto:aprofasifhanif@gmail.com)
2. **Managing editor:** Pioneer Journal of Biostatistics and Medical Research

## ARTICLE INFO

**Asif Hanif**  
**Chief Editor**

Pioneer Journal of Biostatistics  
and Medical Research

**Email:** [aprofasifhanif@gmail.com](mailto:aprofasifhanif@gmail.com)

Vol 01 Issue 02  
APR-JUNE 2023

**ISSN Online:** 2960-2599  
**ISSN Print:** 2960-2580

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## EDITORIAL

There is thermophilic flagellate amoeba that is known as *Naegleria fowleri* and it is labelled as brain-eating amoeba. This is a causative agent for primary amoebic meningoencephalitis (PAM), a dangerous waterborne disease affecting humans and animals.<sup>1</sup> Despite the fact that infections with *Naegleria fowleri* seem to be rather uncommon in comparison to other illnesses, the clinical signs of PAM are severe and almost invariably result in death.<sup>2</sup> Mitosis is the mode of cell division that takes place during the amoeboid trophozoite phase. The size of trophozoite varies anywhere from 15 to 25  $\mu\text{m}$ .<sup>3</sup> Because members of the genus *Naegleria* are free-living ameboflagellates, they may be found in a broad variety of environments all over the globe. Even though over thirty different species have been identified from soil and water, only one of them, *Naegleria fowleri*, has been linked to human illness.<sup>4</sup> Therefore, warm and fresh water is the most common

medium via which PAM is transmitted; nevertheless, infection through mud, dust or soil is a potential alternate route.<sup>5,6</sup> Regardless of decades of studies and researches, the fatality rate of PAM caused by *Naegleria fowleri* remains greater than 90%. This is due to the fact that the disease affects the central nervous system.<sup>7</sup> Although some of the medications that are often used for the treatment of PAM have been shown to be effective (for example, amphotericin B and miltefosine), it is still unknown if the condition can be treated by utilizing a specific combination of these medications.<sup>8</sup> There is a possibility that shifts in climatic circumstances as contributing factor in this unexpected increase, which has significant repercussions for the general populace.<sup>9,10</sup> It can be found in environments all over the world, but it is increasingly being identified in manmade water systems such

drinking water distribution systems (with fatal infections documented from the United States of America, Australia, and Pakistan).<sup>11</sup> Pakistan is ranked the 2<sup>nd</sup> most affected country, where most of cases are reported from the biggest city of Pakistan i.e. Karachi.<sup>12</sup> An immediate epidemiologic examination of the relevant environmental issues is required in order to determine the causes of this abrupt increase in PAM cases.<sup>9</sup> Pakistan is a developing nation, and its health system delivery is nothing near sufficient. Furthermore, many people in Pakistan do not have access to medical services, and those that do exist are inaccessible.<sup>13</sup> Lack of potable water, sanitation, and knowledge exacerbates water-borne illness outbreaks. Authorities must detect widespread health issues and take action to alleviate suffering.<sup>13, 14</sup> Furthermore, there is an immediate need to

educate individuals on the significance of using boiling water for nasal cleaning, particularly after swimming.<sup>6</sup>

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