Letter to the Editor

**Exploring the Relationship between the Global Health Security Index and Monkeypox: An Analysis of Preparedness and Response Capacities**

**Keywords:** Monkeypox (MPX); Positive and death cases; Global Health Security Index (GHSI); Joint External Evaluation (JEE); Public health

**Dear Editor,**

Monkeypox (MPX) is a zoonotic viral reemerged disease which already recorded 87,858 confirmed positive cases and 143 deaths [1,2]. The Global Health Security Index (GHSI) are tools to evaluate a country's health security and preparedness to prevent, detect, and respond to public health threats, including the MPX infectious disease [3]. We hypothesized that a high score on the GHSI suggests that a country has robust public health systems, which entail a range of institutional arrangements, policies, and activities that work together to protect the health of the population [4]. Therefore, the countries with higher scores would experience lower cases and deaths compared to countries with lower scores. This study is undertaken to analyze the relation between total MPX confirmed cases/deaths from the period dated 1 May 2022 to 15 May 2023 from all over the world using correlation analysis [5, 6] (Supplementary data SD1). To ensure that, the United States didn’t influence our data as an outlier, we also did the same analysis by removing that country. We also showed scatter plots for all infected countries to establish our findings in a graphical approach.

Pearson’s correlation test showed a significant positive linear relationship (r=0.403, p<0.001) between total cases and GHSI (Supplementary Table 1 and Figure 1). Pearson’s correlation test also showed a significant positive linear relationship (r=0.629, P=0.005) between total deaths and GHSI. Removing the United States from the dataset, Pearson’s correlation test still showed a significant positive linear relationship (r=0.346, p=0.002) and (r=0.366, p=0.015) between total cases and deaths, respectively with GHSI.



**Figure 1:** Scatter plot with regression line between total cases and deaths of MPX with GHSI (with and without United States).

By using GHSI, policymakers and public health officials can identify gaps in public health systems and develop targeted interventions to improve health security and reduce the impact of monkeypox outbreaks [8]. However, according to our research, countries with high GHSI had a positive correlation with cases and fatalities of monkeypox. This suggests that these rankings do not sufficiently account for the importance of providing universal health coverage and integrating national response services. Furthermore, it may be necessary to significantly revised the indicators and their relative weighting employed in the GHSI in the future.

**References**

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