Table 1: Top 10 total MPX cases and obesity rate of that countries.

|  |  |  |
| --- | --- | --- |
| Location of highest MPX cases (Top 10) | Total cases (12 Jan 2023) | Obesity rate (%) |
| United States (US) | 29761 | 36.20 |
| Brazil | 10599 | 22.10 |
| Colombia | 4049 | 22.30 |
| Mexico | 3696 | 28.90 |
| Peru | 3695 | 19.47 |
| Canada | 1460 | 29.40 |
| Chile | 1398 | 28.00 |
| Argentina | 1037 | 28.30 |
| Nigeria | 763 | 8.90 |
| Ecuador | 460 | 19.90 |

Among top 20 highest MPX cases countries, US had the highest (29761) cases in the world and the lowest among top 20 countries are in Dominican Republic (52). By obesity rate, US also has the highest (36.20%) cases among top cases countries where lowest (6.70%) in Democratic Republic of Congo (table 1).

Table 2: Relation between top 10 MPX cases countries and obesity rate of that countries

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Top 10 | | | World (38 countries) | | |
|  | Estimate | 95% CI | P-value | Estimate | 95% CI | P-value |
| Total cases | 0.045% | -0.005% to 0.094% | 0.114 | 0.055% | 0.007% to 0.103% | 0.032 |
|  | Correlation Coefficient, r = 0.532 | | R-squared = 28.29% | Correlation Coefficient, r = 0.368 | | R-squared = 13.56% |

From Table 2, if obesity rate increases by 1%, the average total MPX cases increases by 0.048%. The model explained 19.70% of total variation. The Pearson’s correlation coefficient and scatter plot showed perfect positive linear relationship (r=0.444) between total cases and obesity rate of top 20 MPX cases countries (table 2 and figure 1).

Table 3: Top 10 total MPX deaths and obesity rate of that countries.

|  |  |  |
| --- | --- | --- |
| Location of highest MPX deaths (Top 20) | Total cases (12 Jan 2023) | Obesity rate (%) |
| United States | 21 | 36.20 |
| Brazil | 14 | 22.10 |
| Peru | 12 | 19.47 |
| Nigeria | 7 | 8.90 |
| Ghana | 4 | 10.90 |
| Mexico | 4 | 28.90 |
| Cameroon | 3 | 11.40 |
| Argentina | 2 | 28.30 |
| Chile | 2 | 28.00 |
| Ecuador | 2 | 19.90 |

The United States has the highest MPX deaths (21) and has 36.20% of the population obese. Argentina, Chile, and Ecuador have the lowest MPX deaths, two deaths each and has 28.30%, 28.00% and 19.90% of the population obese, respectively among top 10 highest deaths countries (table 3).

Table 4: Relation between top 10 MPX deaths countries and obesity rate of that countries

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Top 10 | | | | World (12 countries) | | | |
|  | Estimate | | 95% CI | P-value | Estimate | 95% CI | | P-value |
| Total cases | 0.505 | | -0.397 to 1.408 | 0.304 | 0.561 | -0.275 to 1.397 | | 0.218 |
|  | | Correlation Coefficient, r = 0.362 | | R-squared = 13.08% | Correlation Coefficient, r = 0.384 | | R-squared = 14.75% | |

From Table 4, if obesity rate increases by 1%, the average total MPX deaths increases by 0.505 times. The model explained 13.08% of total variation. The Pearson’s correlation coefficient and scatter plot showed perfect positive linear relationship (r=0.362) between total deaths and obesity rate of top 10 MPX deaths countries (table 4 and figure 1).

Figure 1: Scatter plot with regression line between total cases and deaths of MPX with obesity rate.

