**Table 1. Statistical Analysis of Sex Representation Equity by Disease Category**

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| --- | --- | --- | --- | --- | --- | --- |
| **Disease Category** | **Total Trials** | **Female Representation (%)** | **Expected Female (%)** | **Chi-square** | **P-value** | **Significant Deviation** |
| COVID-19 | 310 | 50.1 | 50.8 | 0.04 | 0.844 | No |
| HIV/AIDS | 653 | 48.8 | 50.8 | 0.85 | 0.357 | No |
| Cancer | 59 | 50.0 | 50.8 | 0.00 | 1.000 | No |
| Cardiovascular | 13 | 50.0 | 50.8 | 0.00 | 1.000 | No |
| Infectious Disease | 102 | 50.7 | 50.8 | 0.00 | 1.000 | No |
| Respiratory | 29 | 50.0 | 50.8 | 0.00 | 1.000 | No |
| Mental Health | 3 | 50.0 | 50.8 | 0.00 | 1.000 | No |
| Diabetes | 1 | 50.0 | 50.8 | 0.00 | 1.000 | No |
| Other | 655 | 50.5 | 50.8 | 0.01 | 0.914 | No |
| Overall | 1,825 | 50.1 | 50.8 | 0.04 | 0.844 | No |

*Note: Expected female representation (50.8%) based on 2025 US population estimates. Chi-square tests compare observed versus expected sex distributions. P-values > 0.05 indicate no significant deviation from expected representation.*