**Seasonal Statistical Analysis of End-of-Life Care Search Trends in India (2023-2025)**

**Data Organization by Seasons**

**Summary Statistics by Season**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Season** | **Mean** | **Median** | **SD** | **Min** | **Max** |
| Summer | 58.06 | 60.5 | 18.38 | 0 | 85 |
| Monsoon | 50.57 | 56.0 | 25.17 | 0 | 96 |
| Post-monsoon | 59.76 | 65.0 | 27.18 | 0 | 95 |
| Winter | 55.30 | 63.0 | 26.76 | 0 | 100 |

**Statistical Tests**

1. **Kruskal-Wallis Test**
   * H-statistic = 3.34
   * p-value = 0.342
   * **Result:** No statistically significant differences between seasons (p > 0.05)
2. **Seasonal Mann-Kendall Test Results**

|  |  |  |  |
| --- | --- | --- | --- |
| Season | Tau | p-value | Sen's Slope |
| Summer | -0.12 | 0.494 | -0.72 |
| Monsoon | 0.01 | 0.966 | -0.43 |
| Post-monsoon | 0.05 | 0.773 | 1.29 |
| Winter | 0.26 | 0.085 | 2.78 |

* **Winter shows the strongest upward trend**, but it is not statistically significant (p > 0.05).

1. **Year-over-Year Seasonal Comparison**

|  |  |  |  |
| --- | --- | --- | --- |
| Season | 2023 Mean | 2024 Mean | % Change |
| Summer | 62.80 | 56.23 | -10.46% |
| Monsoon | 51.53 | 49.67 | -3.61% |
| Post-monsoon | 62.78 | 56.38 | -10.20% |
| Winter | 33.80 | 61.46 | +81.84% |

**Key Findings**

* **Seasonal Patterns:**
  + **Highest mean search volume:** Post-monsoon (59.76)
  + **Lowest mean search volume:** Monsoon (50.57)
  + **Greatest variability:** Post-monsoon (SD = 27.18)
  + **Most stable:** Summer (SD = 18.38)
* **Trend Analysis:**
  + **Winter shows the strongest increasing trend** (Tau = 0.26, Sen's Slope = 2.78), though not statistically significant.
  + Other seasons do not exhibit significant trends.
* **Year-over-Year Growth:**
  + **Largest increase:** Winter (+81.84%)
  + **Declines observed in Summer (-10.46%), Post-monsoon (-10.20%), and Monsoon (-3.61%)**

**Statistical Insights**

* **Winter has seen a sharp rise in search interest, possibly due to seasonal factors or evolving awareness.**
* **Post-monsoon and Summer have experienced notable declines.**
* **Overall, no significant seasonal differences were detected, but Winter's upward movement is noteworthy.**

**Limitations**

* **Time Series Constraints:**
  + Limited to two-year period.
  + Potential influence of external factors such as healthcare policies or awareness campaigns.
* **Search Volume Considerations:**
  + Data sourced from Google Trends, representing relative search interest.
  + Regional variations within India may affect results.

**Conclusions**

The statistical analysis highlights **seasonal variations in end-of-life care search trends**, with Winter emerging as the most dynamic season in terms of growth. While no statistically significant differences were found across seasons, Winter's increasing trend warrants further investigation. The findings suggest a shifting pattern in public interest over time, which could be influenced by multiple social and healthcare factors.