

# Research Study on Seasonal Variation in Daily Step Counts

This study looks at how the change of seasons might change the number of steps people take each day. I think that the weather and the environment that come with different seasons could make people more or less likely to be active, like going for walks. For a long time, I've been keeping track of my own steps every day across the seasons.

I was curious about how the different times of year affect our daily walking habits. Walking is important for health, so I've been using a step counter to record my daily steps for several years. This personal data helps me see how my own activity levels vary with the seasons. By analyzing this data with charts and calculations, I aim to better understand these patterns. This insight might help with encouraging year-round activity and could inform how we design healthier communities.

This project taught me a lot about how to look at problems and find answers in data. Before, I had all these numbers and records from my step counter but now I know how to make sense of them. For example, I can see how the weather or the time of year makes me walk more or less. I've also gotten good at figuring out what the data means like finding out if I walk less when it is cold. Doing all this has made me much better at understanding data. It's as if I have acquired a new ability, now I am able to transform my daily routines and health observations into a hypothesis and test those.

However, while the project was successful, I faced challenges with limited time and data. With access to more data in the future, I could enhance the quality of the research. Addressing these challenges is key to making the project more useful on a larger scale. I want to gather more data over a longer time to make sure the results are right. I will also look at other things that might change how many steps people take every day, like the weather, when people work, and how they live their lives. If I study people from different places and backgrounds, I can learn things that work for everyone. This can help make better health programs and city plans. We need to keep studying this to find ways to get people to walk more, which is good for everyone's health.

In the various stages of data analysis for this project, I began by addressing gaps in the data, eliminating any repeated information, and correcting errors to ensure the dataset's accuracy. During the exploratory phase, I applied basic statistical methods to outline the primary characteristics of the data and used graphical tools like histograms and scatter plots to observe the distribution and relationships within the data. In preparation for deeper analysis, I standardized the data to ensure uniformity and created new variables pertinent to my research, converting categorical information into a numerical format suitable for analytical methods.

My analytical approach involved testing hypotheses to confirm or refute my initial thoughts, and I employed regression techniques to explore the relationships between different data elements.

For the time series analysis, I broke down the data chronologically to identify patterns over time.

When it came to sharing the findings, I focused on clarity and simplicity in communication, using visual aids and narrative techniques to present the results in an engaging and understandable manner. This approach ensured that the report met academic standards while remaining accessible by simplifying complex concepts for a broader audience.