

An Investigation of the Physical Task Demands of Caregivers Working in a Long-Term  
Care Facility

Statistical Analysis Plan

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June 7<sup>th</sup>, 2024

## Statistical Analysis Plan (SAP)

### **Data processing**

#### Descriptive Statistics:

Descriptive statistics using the software IBM SPSS, Version 29 (mean, median, standard deviation, etc.) will be used to evaluate quantitative values derived from the newly developed ergonomic tool.

#### Cross Correlations:

A series of cross correlations will be run on the Health and Lifestyle Questionnaire to identify correlations between different Work-Related Musculoskeletal Injury (WRMSI) risk factors. The correlation coefficient will enable us to identify whether the relationships are inversely proportional or directly proportional. For example, it will be possible to examine the correlation between physical activity levels and WRMSI history, as well as whether there is a relationship between increases in smoking and alcohol consumption and WRMSI.

#### Repeated Measures ANOVA:

A Repeated Measure ANOVA will be used to interpret the results obtained from the RPD-Q. The data will be compared at three different time points: the beginning, middle and end of the caregiver's shift. During analysis, it will be possible to observe whether there has been a significant increase in perceived discomfort during the workday and which areas of the body experienced the most significant increase. Prior to running the repeated measures ANOVA, each data point will be plotted to observe if it is normally distributed. Mauchly's test will be used to assess the sphericity assumption. If the sphericity assumption is violated, the Greenhouse-Geisser correction will be used. The alpha level will be set at  $p < .05$ , and if any significant interactions are found, Tukey and Bonferroni post hoc analyses will be used.

The same approach will be used for the physiological outcome measures: heart rate monitor and the galvanic skin response system. Repeated Measures ANOVA will be utilized to compare the data collected at the beginning, middle and end of the caregiver's shift. The outcome measure will be to quantify whether stress levels and fluctuations of heart rate increased throughout the workday. If any significance is found, a Tukey and Bonferroni correction will be applied.

#### Qualitative Results:

A qualitative approach will be used to synthesize information gathered from the workers through the use of field notes. This will include documenting the circumstances surrounding their previous injuries and other relevant details.