# LA Nurse BP

Case Study 1[*]

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**Executive Summary**

Here is what I did.

## 1 Introduction

Certain traits such as family history and mood are expected to increase one's ambulatory
blood pressure (BP). Goldstein and Shapiro (2000) studied potential factors that contribute
to hypertension. They collected information about the participants' BP, activity levels,
work status, and mood ratings throughout the day, as well as relevant family history and
information about their menstrual phases, to establish links that lead to elevated BP. Towards
the end, they sought to uncover preventative measures for individuals who may be at a
higher risks of developing hypertension. The objectives of this project is much simpler. I am
interested in exactly what traits are *associated* with elevating one's BP, given the longitudinal
structure and various time-dependent metrics in the dataset (given by Goldstein & Shapiro,
2000; cited by Roback & Legler, 2021 ).

### 1.1 Methods

The dataset includes repeated measures over the course of two work and off-work days on
203 registered nurses between the ages of 24 and 50 years working in Los Angeles, in 2000.
Of those 203 nurses, 172 has complete data on all of the variables recorded.[1]

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[*]Code used for this project is available at this GitHub Repository.

[1]In the original paper by Goldstein and Shapiro (pp. 228–29), they reported 171 nurses who completed all
sessions. It is likely that this is due to Roback and Legler (2021) or Weiss (2005) excluding other personality
variables used in the original study. Because I am not investigating personality traits in this project, 172
suffices being my total subject counts. Additionally, Goldstein and Shapiro mention that "[s]imilar patterns
of findings were obtained in the sample of 171 as in the total sample" (p. 229).

## 2 Exploratory Data Analysis

## 3 Model Selection

## 4 Results

## References

Goldstein, I. B., & Shapiro, D. (2000). Ambulatory blood pressure in women: Family history of hypertension and personality [Publisher: Taylor & Francis _eprint: https://doi.org/10.1080/713690197]. *Psychology, Health & Medicine*, *5*(3), 227–240. https://doi.org/10.1080/713690197

Roback, P., & Legler, J. (2021). *Beyond multiple linear regression* (1st ed.). Chapman; Hall/CRC. Retrieved February 10, 2025, from https://bookdown.org/roback/bookdown-BeyondMLR/

Weiss, R. E. (2005). *Modeling longitudinal data*. Springer. https://doi.org/10.1007/0-387-28314-5