

# Analysis of Diabetes, Cholesterol Profiles and Cardiovascular Risk Factors Prevalence in Brazil - A Multicentric Populational Study

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## Introduction

Early detection and control of cardiovascular risk (CR) factors such as diabetes (DM), hypertension (HAS), smoking, and dyslipidemia (DLP) are essential for preventing cardiovascular diseases (CVD), a leading cause of morbidity and mortality worldwide. Detection campaigns were conducted in Porto Alegre, São Paulo, and Vitória to assess the prevalence of these factors and their relationship with glucose and cholesterol levels.

## Methodology, Results, and Discussion

Demographic and clinical data were collected from 1471 participants, including age, sex, race, presence of DM, HAS, smoking, DLP, cardiovascular risk, capillary BG, total cholesterol, LDL, HDL, and triglycerides. Analysis was performed using R software, for statistical tests (ANOVA, Kruskal-Wallis, and multiple linear regression).



The average age of participants was 46 years, with 37.55% being female. The prevalence of DM was 9.94%, HAS 21.76%, smoking 9.66%, and statin use 13.38%. Cardiovascular risk (CR) was high in 41.74% and very high in 3.98% of the population. The mean glucose level was 106mg/dL, and the mean LDL cholesterol was 114mg/dL. People with high CR had a mean LDL of 113 (IQR 84-139) and very high CR had a mean LDL of 112 (IQR 81-150). Table 1 present detailed results.

Correlation analysis showed a significant negative correlation with HDL ( $p=0.023$ ) and suggested that having a random BG higher than 115 is strongly related to high or very high cardiovascular risk. Multiple linear regression indicated that DM was a more significant risk factor for CVD development than LDL levels, regardless of other risk factors ( $p<0.001$ ), showing 3.5 times increase in risk.

The results suggest that DM management may play a crucial role in preventing CVD, even in individuals with normal cholesterol levels. Moreover, around 29.9% of the population indicated for statins is effectively using them. This highlights the importance of intervention strategies targeting both lipid and DM management in high-risk populations.

## Conclusion

The analysis of data from detection campaigns showed a significant prevalence of cardiovascular risk factors in the Brazilian population, with DM being an important independent predictor of CVD risk, consistent with scientific literature. Statin use is below WHO DM targets for 2030, and most of the population had LDL levels higher than the target for their CR. These findings indicate the need for integrated approaches to control multiple risk factors, aiming at reducing CVD morbidity and mortality in Brazil.

Characteristic	Mean / Prevalence	Standard Deviation
Age	46.10 years	16.80 years
Sex (Female)	37.55%	-
Diabetes	9.94%	-
Hypertension	21.76%	-
Smoking	9.66%	-
Statin Use	13.38%	-
Cardiovascular Risk		
- Low/Intermediary	53.43%	-
- High	41.74%	-
- Very High	4.83%	-
Glucose	106.01 mg/dL	42.95 mg/dL
Total Cholesterol	196.42 mg/dL	51.50 mg/dL
LDL Cholesterol		
- Low/Intermediary Risk	118.58 mg/dL	46.09 mg/dL
- High Risk	113.43 mg/dL	40.97 mg/dL
- Very High Risk	112.58 mg/dL	50.31 mg/dL
HDL Cholesterol	47.43 mg/dL	16.23 mg/dL
Triglycerides	175.47 mg/dL	82.32 mg/dL

(Table 1. Detailed results from health campaign)

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