



Proyecto Puentes de Salud (Project Health Bridges): An Exploration of Cardiovascular Health and Risk Factors in Rural Mexico

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Introduction

- The 2000 North Carolina census estimated a **1200% increase in Hispanic immigration** to the Raleigh, Durham, and Chapel Hill area. A majority of these economic migrants are from rural Mexican communities. In the Chapel Hill/Carrboro community many have ties to the Mexican state of Guanajuato.
- As a whole, **these economic immigrants are underserved and little data are available** on health issues relevant to them. Even less is known regarding the health profile of the rural communities from which they hail.
- Therefore, **Proyecto Puentes de Salud was created** to:
 - Investigate the **prevalence of cardiovascular risk factors and correlating lifestyle behaviors** in the rural towns of Guanajuato, Mexico.
 - Provide **free health screenings and education**.
 - Immerse future doctors** in the Mexican culture and language.
- Implications:** The research will **prompt further studies into rural Mexican health** to obtain a **comprehensive picture of Latino heart health**. Future screenings will study **North Carolina immigrants** as well, so that correlations can be drawn between rural Mexicans and immigrants that hail from rural areas.



The six rural communities we screened were located near Juventino Rosas, in the central state of Guanajuato, Mexico.



82.77% of the participants were women. Immigration, cultural norms, and the arrival of the planting season all contributed to this gender discrepancy.



Daily afternoon information sessions (pláticas) were held to raise awareness and educate about lifestyle modifications to improve cardiovascular health.



The project established a base of operation in the centrally located Catholic parishes of each town which provided the project with a strong foundation of support that facilitated trust.

Methods

- Cross-sectional study design
- The six communities around **Juventino Rosas** were selected based on two criteria:
 - High rate of economic migration to the US.
 - Limited access to health care.
- During June-July 2006, a convenience sample of participants from these *pueblos* were:
 - Offered free screening for cholesterol (total and HDL), fasting glucose, blood pressure, and obesity.
 - The **Cholestech LDX® System** is a rapid, point of care device used to measure serum cholesterol and glucose levels.
 - Counseled about risk factors for cardiovascular disease and diabetes.
 - Referred to a network of local physicians in cases of high risk.
- A **Perfil de Bienestar Personal (Personal Wellness Profile)™** was completed for each participant. This comprehensive health assessment provided:
 - Demographic information
 - Past medical history
 - Family history
 - Dietary and lifestyle behaviors
 - Social and psychological health
- Descriptive statistics are presented as medians (interquartile range) for continuous variables and as frequencies and percentages for discrete variables.
- All subjects were verbally consented and the project was approved by the IRB at the School of Medicine – University of North Carolina at Chapel Hill

Results

Baseline Characteristics (n=267)

Median Age (years)	45 (36, 63)
Female gender	82.77%
Body Mass Index	
Overweight (25-29)	37.9%
Obese (≥30)	31.8%
Abdominal Obesity	
Women (>0.85 waist to hip ratio)	75.1%
Men (>0.9 waist to hip ratio)	63.0%
History of Hypertension	29.0%
29% Previously Medicated	
History of Diabetes	5.0%
43% Previously Medicated	
History of Hypercholesterolemia	7.0%
26% Previously Medicated	

Figure 1. Blood Pressure

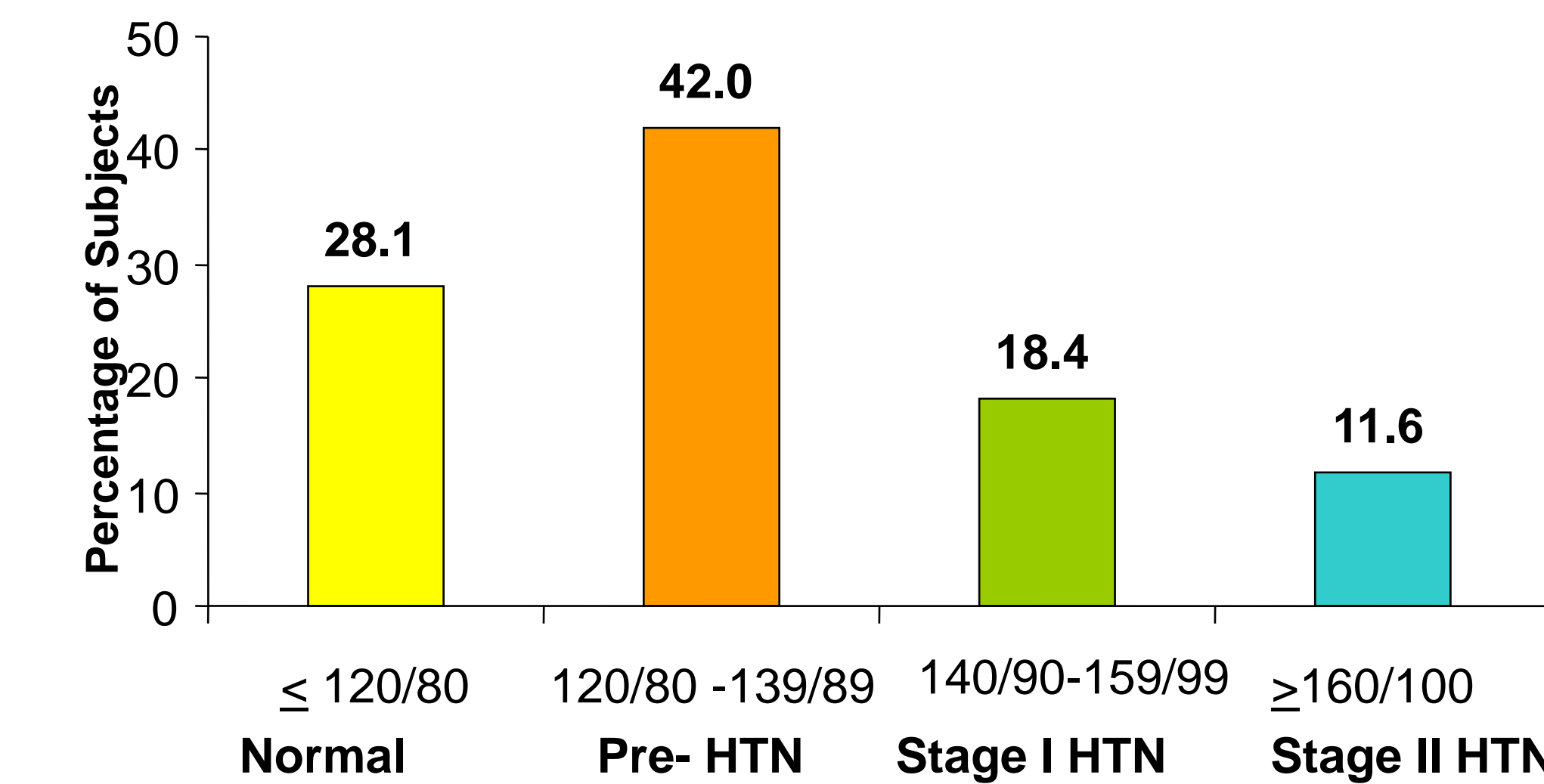


Fig. 1. This figure shows the percentage of subjects with Pre-Hypertension (42.0%), Stage I Hypertension (18.4%), and Stage II Hypertension (11.6%). Units are in mm/Hg.

Contributing Factors (Lifestyle Risk)

Non Smokers	89.9%
Low fruit and vegetable intake (≤ 2 Fruits and Vegetables/day)	87.3%
High fat intake (mainly or Always eat meals high in fat)	39.0%
High Salt Consumption (salt added to most or all foods)	50.9%
Mostly or always eat refined grains	52.8%
Physical inactivity	59.2%



Figure 2. Blood Cholesterol and Glucose

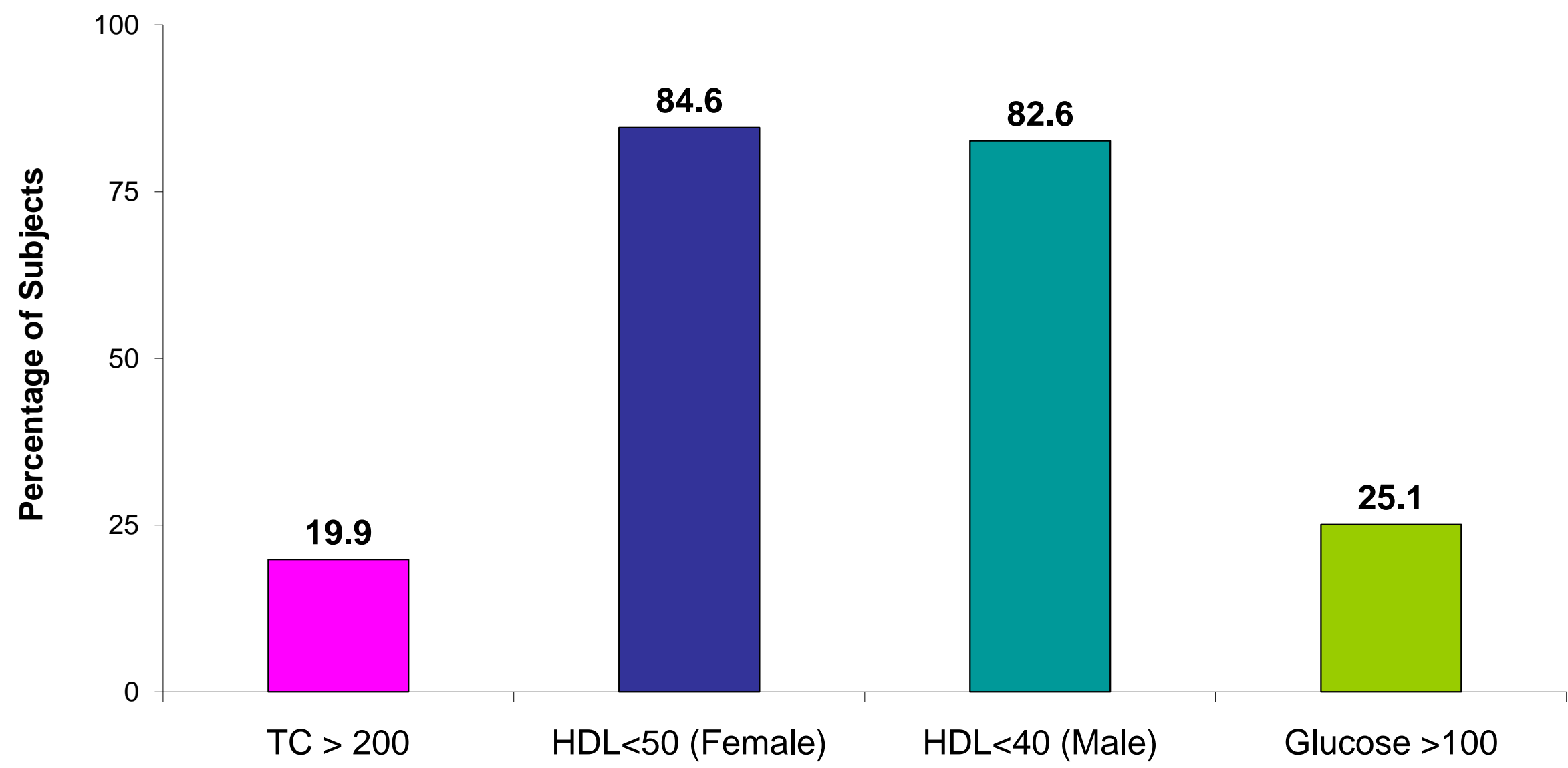


Fig. 2. This figure shows the percentage of subjects with Hypercholesterolemia (19.9%), low HDL Cholesterol/Dyslipidemia (84.6% Female; 82.6% Male), and Impaired Fasting Glucose (25.1%). Units are in mg/dL.

Figure 3. The Metabolic Syndrome

Insulin Resistance + 2 of the Following (WHO; Grundy et al, 2006)

- Abdominal Obesity
Men: >0.9 waist/hip
Women: >0.85 waist/hip
- Low HDL Cholesterol
Men: <35 mg/dL
Women: <39mg/dL
- Blood Pressure
≥140/≥90(mmHg)
- Plasma Triglycerides
≥150 mg/dL
- Urinary Albumin Excretion
≥30mg/g albumin:creatinine

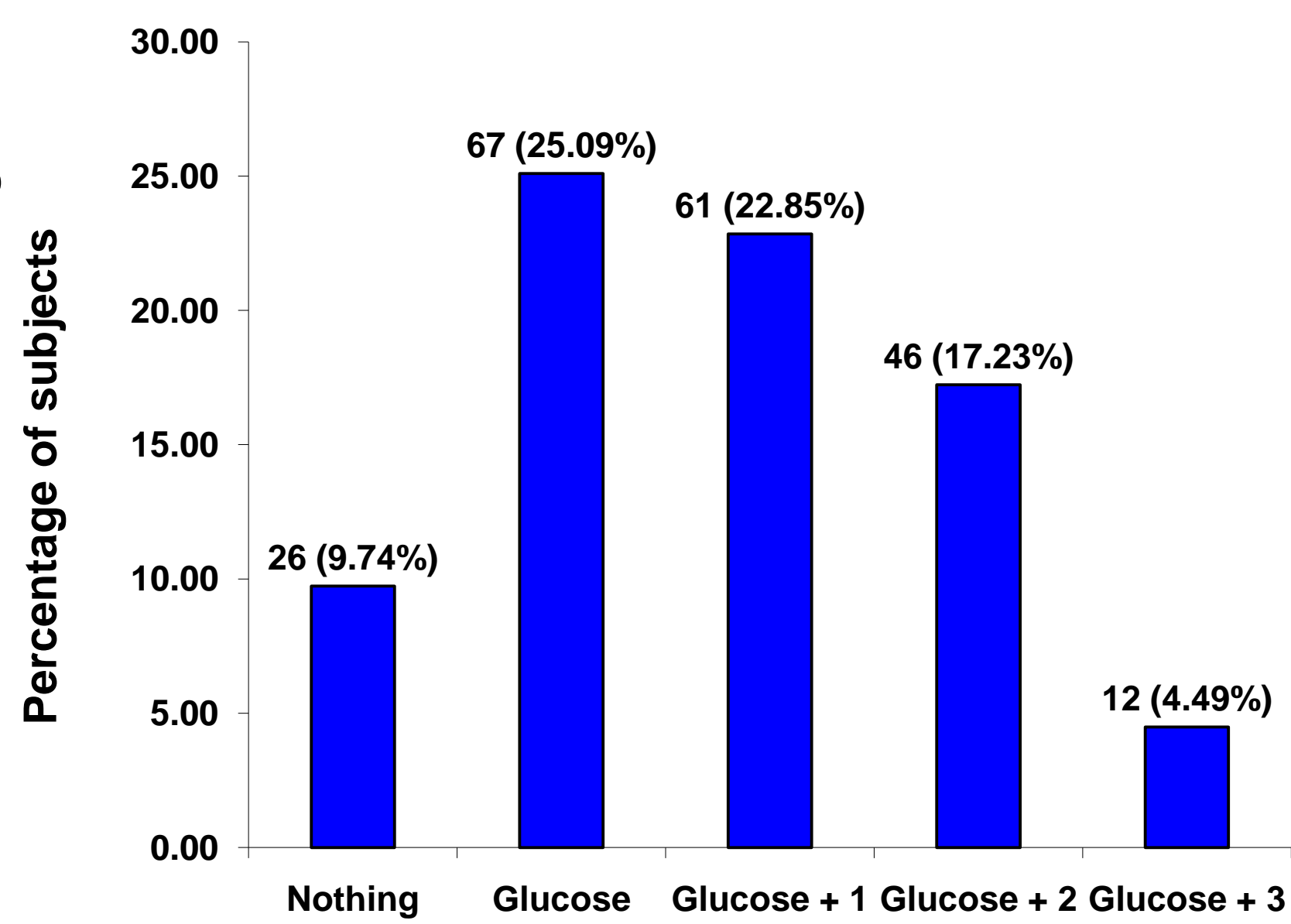


Fig. 3. 22% of participants had the Metabolic Syndrome and 23% are one risk factor away from diagnosis, suggesting elevated cardiovascular risk.

Discussion

- The majority of rural Mexicans in the Juventino Rosas area have lifestyles that can **jeopardize their cardiovascular health and lack of general wellness knowledge** exacerbates this effect.
- A **substantial presence of The Metabolic Syndrome** suggests rampant cardiovascular disease in this demographic.
- This study **provides physicians with a broader picture of their patients' antecedent health** and behavior, which is important for educating in the clinic.
- Comparative analysis** of rural Mexican immigrants in NC, and further research in Mexico would help to create a comprehensive view of NC Latino heart health.
- Limitations:** The study was a convenience sample, the subjects were young, and males were underrepresented.