

Prevalence, Treatment, and Control of Hypertension and/or Dyslipidemia Among Hispanic Adults in US Communities

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ABSTRACT

Background: Hispanics represent a substantial growing segment of the US population and are the largest minority group; however, little data exist on the extent of hypertension (HTN) and dyslipidemia (DYS) in this group. We examined the prevalence of HTN, DYS, and concomitant HTN and DYS among a large screened population free of diabetes and coronary heart disease.

Methods: 4700 participants without diabetes and coronary heart disease (mean age 46.7 years; 62.0% female) enrolled in Hispanic Community Outreach programs in Miami (*n* = 301), New York (*n* = 188), Los Angeles (*n* = 3633), and Houston (*n* = 578) and received measures of total cholesterol (TC), blood pressure (BP), and review of their self-reported medical history, including use of antihypertensive and lipid-lowering medications.

Results: The prevalence of HTN and/or DYS, their treatment rates and the respective control rates of those treated are shown in the table below:

	Prevalence	Treatment among prevalent cases	Control among the treated
HTN (BP \geq 140/90 mm Hg or on medication)	32.7%	37.1%	43.5%
DYS (TC \geq 240 mg/dL or on medication)	22.2%	40.8%	79.8% / 48.7%**
Both HTN and DYS	11.2%	36.1%	31.1%* / 21.1%**

Control definitions: For HTN, BP \geq 140/90 mm Hg; for DYS, TC \geq 240 mg/dL* or TC \geq 200 mg/dL**; for both HTN and DYS, BP \geq 140/90 mm Hg and TC \geq 240 mg/dL* or BP \geq 140/90 mm Hg and TC \geq 200 mg/dL**

Furthermore, the prevalence of pre-hypertension (BP 120–139/80–89 mm Hg and not treated) was 38.4%, while the prevalence of borderline high cholesterol (TC 200–239 mg/dL and not treated) was 26.5%.

Conclusion: Our results demonstrate a substantial prevalence of HTN and DYS among healthy US Hispanic adults. The control rate of DYS with therapy appears to be better than that of HTN with therapy, and the control rate of both HTN and DYS is low. Intensified efforts to identify and treat those Hispanics with these conditions are especially needed.

DISCLOSURE

This study was supported by Pfizer Inc. **Authors' financial disclosure information:** Stan Bassin – Nothing to disclose; Sean Candrilli – Consultant, Pfizer Inc; EunMee Lee – Employee, Pfizer Inc; Heather Laird – Consultant, Pfizer Inc; Stewart Levy – Consultant, Pfizer Inc; Simon Tang – Employee, Pfizer Inc; Nathan Wong – Grant support (significant) from Pfizer Inc and Merck; Speaker's bureau (modest) from Takeda, Pfizer Inc, and Sanofi-Aventis.

BACKGROUND

- Annual estimates of the US population identify Hispanics as being the largest ethnic minority group and a substantial component of the national population growth.^{1,2}
- Hypertension (HTN) and dyslipidemia (DYS) are highly prevalent conditions in the US that are independently associated with increased risks for cardiovascular disease.^{3,4}
- An increase in the prevalence of the metabolic syndrome in Mexican Americans has been reported, and this may contribute to the incidence of cardiovascular disease in this ethnic minority group.⁵
- Hispanics have the lowest treatment and control rates of combined HTN and DYS compared with African Americans and non-Hispanic whites from a recent report of the National Health and Nutrition Examination Survey (NHANES).⁶

STUDY OBJECTIVE

- To examine the prevalence, treatment, and control of HTN and DYS in a large population of Hispanics without either diabetes mellitus (DM) or coronary heart disease (CHD) in a variety of urban community settings.

METHODS

Study Population

- In partnership with various organizations such as the local chapters of the American Heart Association, retailers (e.g., Albertson's, Navaros), hospitals, and local Young Men's Christian Association (YMCA), Pfizer Inc conducted numerous health screening events in 4 US communities with a high concentration of Hispanics. These events were developed to help bridge the healthcare disparity gap in the local Hispanic communities by increasing cardiovascular health awareness and empowering patients and doctors to take action.
- Participants were recruited via advertisements in the media, websites, community calendars and local flyers, and screening events were held at various venues:
 - "Non-healthcare facility": church, community centers (e.g., YMCA), retail stores (e.g., grocery store), and festivals.
 - "Healthcare facility": outside of outpatient hospitals/clinics, physician offices, and hospitals (e.g., parking lots).
- No incentives were provided to participants, other than a report of their risk factor measurements and counseling to seek further medical attention, if needed.
- A cross-sectional analysis was conducted to assess data from 4700 participants, without DM or CHD, enrolled in Hispanic health screening programs during a period of 2 years (2004–2006) in Miami (*n* = 301), New York (*n* = 188), Los Angeles (*n* = 3633), and Houston (*n* = 578).
- Participants with single measurement of fasting glucose level \geq 126 mg/dL (or $<$ 200 mg/dL if non-fasting) and not currently taking medications for DM (self-reported) were included in this analysis.
- Blood pressure (BP) measurements were collected utilizing OMRON Automatic Monitors®, and total cholesterol (TC) was measured with Cholestech LDX® instruments (full lipid assessments were only available in a subset and are not included in this report). Single measurements of these parameters were collected per participant.
- Medical history to determine the absence of CHD, as well as to ascertain current "treatment" status were based on participants' self-report on a written questionnaire, which was administered in both English and Spanish.
- Chi-square tests were used, as appropriate, to check for statistical differences in parameter estimates.

REFERENCES 1. US Census Bureau. Table 3: Annual estimates of the population by sex, race and Hispanic or Latino origin for the United States: April 1, 2000 to July 1, 2005 (NC-EST2005-03). May 10, 2006. Available at: <http://www.census.gov/>. 2. US Census Bureau. Table 5: Cumulative estimates of the components of population change by race and Hispanic or Latino origin for the United States: April 1, 2000 to July 1, 2005 (NC-EST2005-05). May 10, 2006. Available at: <http://www.census.gov/>. 3. Chobanian AV, Bakris GL, Bakris GL, et al. *JAMA* 2003;289:2560-72. 4. Third Report of the National Cholesterol Education Program (NCEP) (Adult Treatment Panel III). *JAMA* 2001;285:2486-97. 5. Lorenzo C, Williams K, Hunt KJ, Haffner SM. *Diabetes Care* 2006;29:625-30. 6. Wong ND, Lopez V, Tang S, et al. *Am J Cardiol* 2006;98:204-8. 7. American Heart Association. Heart Disease and Stroke Statistics - 2007 Update. Table 20-3. *Circulation* 2007;115:e166. 8. Hertz RP, Unger AN, Ferrario CM. *Am J Prev Med* 2006;30:103-10.

Definitions

- HTN: BP \geq 140/90 mm Hg or on antihypertensive medication.
- DYS: TC \geq 240 mg/dL or on lipid-lowering medication.
- "Control" of HTN: BP $<$ 140/90 mm Hg.
- "Control" of DYS (2 cut-points analyzed): TC $<$ 240 mg/dL or TC $<$ 200 mg/dL.
- Pre-hypertension: BP 120–139/80–89 mm Hg and not on antihypertensive medication.
- Borderline high cholesterol: TC 200–239 mg/dL and not on lipid-lowering medication.

RESULTS

Baseline Demographics

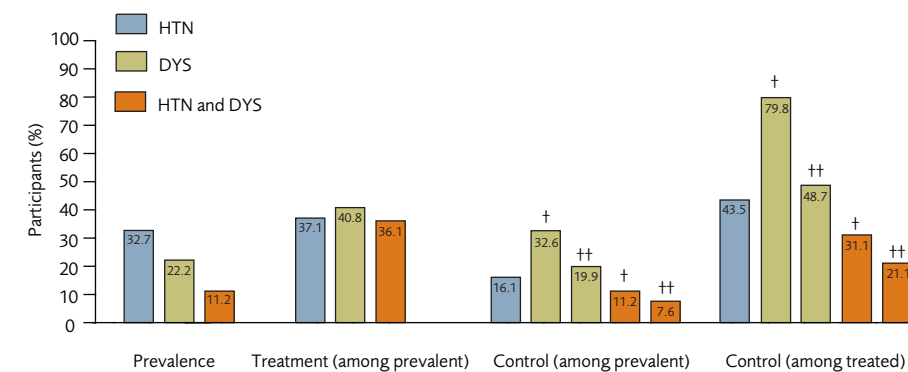
- Median age of study participants was 45 years, with a minimum of 20 years and a maximum of 102 years. Mean (SD) age was 46.7 (13.7) years.
- Participants \geq 55 years comprised 28.8% of the study population.
- Women comprised 62.0% of the study population.
- Insured participants comprised 20.4% of the study population.

Prevalence of Hypertension and/or Dyslipidemia

- Prevalence of HTN, DYS and combined HTN and DYS was 32.7%, 22.2%, and 11.2%, respectively (Figure 1).
- Statistical testing (Chi-square tests) revealed:

- Significant differences existed in the prevalence of HTN alone and prevalence of DYS alone between: men versus women; insured versus uninsured; and aged $<$ 55 years versus aged \geq 55 years old (*P* $<$ 0.01; Figure 2).
- Similarly, significant differences existed in the prevalence of both HTN and DYS between: insured versus uninsured, and aged $<$ 55 years old versus aged \geq 55 years (*P* $<$ 0.0001; Figure 2).
- Prevalence of pre-hypertension was 38.4%.
- Prevalence of borderline high cholesterol was 26.5%.

Figure 1. Prevalence, treatment, and control of HTN, DYS, or both HTN and DYS



Prevalence definitions: For HTN, BP \geq 140/90 mm Hg or on medication; for DYS, TC \geq 240 mg/dL or on medication; for HTN and DYS, BP \geq 140/90 mm Hg and TC \geq 240 mg/dL or on medication.

Control definitions: For HTN, BP $<$ 140/90 mm Hg; for DYS, TC $<$ 240 mg/dL* or TC $<$ 200 mg/dL**; for both HTN and DYS, BP $<$ 140/90 mm Hg and TC $<$ 240 mg/dL* or TC $<$ 200 mg/dL**

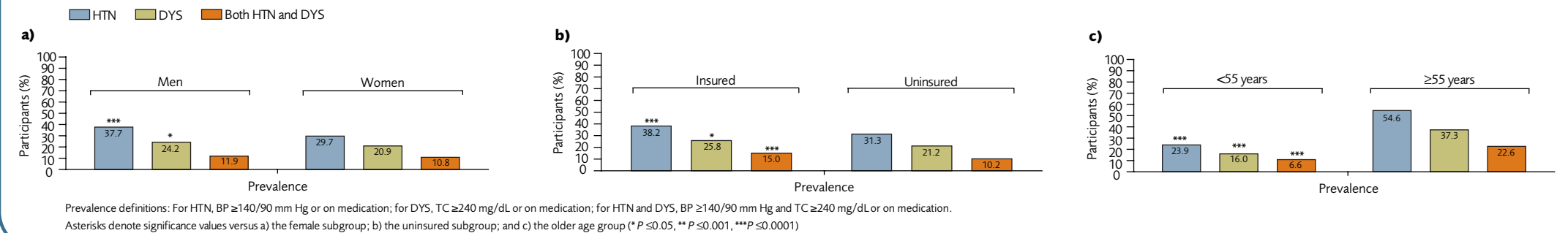
Treatment of Hypertension and/or Dyslipidemia

- Treatment rates for HTN, DYS, and combined HTN and DYS among prevalent cases were 37.1%, 40.8%, and 36.1%, respectively (Figure 1).
- Treatment rates for HTN, DYS, and combined HTN and DYS were significantly different between men and women, between insured and uninsured participants, and between those aged $<$ 55 years and aged \geq 55 years (*P* $<$ 0.05; Figure 3).

Control Rates of Hypertension and/or Dyslipidemia

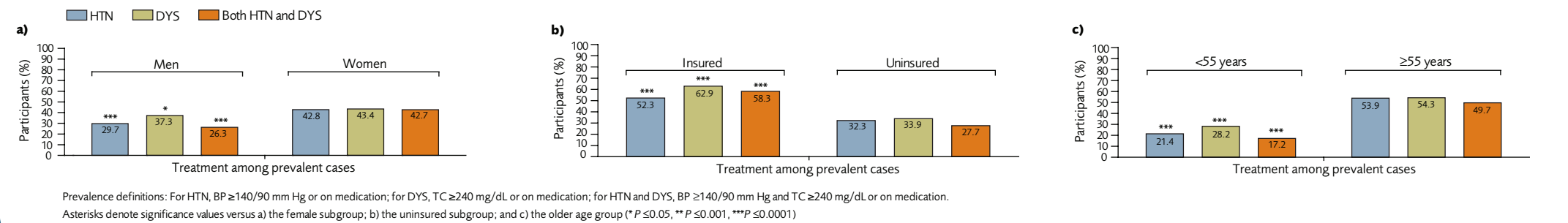
- Control rates of HTN were 43.5% among those treated and only 16.1% among prevalent cases (Figure 1).
- When a cut-off value of TC $<$ 240 mg/dL was used, the control rates for participants (among the treated) with DYS alone, or combined HTN and DYS were 79.8% and 31.1%, respectively, whereas using a cut-off value of TC $<$ 200 mg/dL resulted in control rates of 48.7% and 21.1%, respectively (Figure 1).
- Control rates among prevalent cases of DYS, and both HTN and DYS were lower than among those treated, and were 32.6% (or 19.9% for TC $<$ 200 mg/dL cut-off), and 11.2% (or 7.6% for TC $<$ 200 mg/dL cut-off), respectively (Figure 1).
- Statistical testing (Chi-square tests) revealed:
 - Significant differences were apparent between men and women for control rates of HTN only, and for DYS only (with TC $<$ 200 mg/dL cut-off) (*P* $<$ 0.05; Figure 4).
 - Significant difference between insured and uninsured participants occurred for control of both HTN and DYS (*P* $<$ 0.03; Figure 4).
 - Significant difference between $<$ 55 years old and \geq 55 years old occurred for the control rate of HTN only (*P* $<$ 0.02; Figure 4).

Figure 2. Prevalence of HTN, DYS, or both HTN and DYS stratified by (a) gender; (b) insurance status; and (c) age



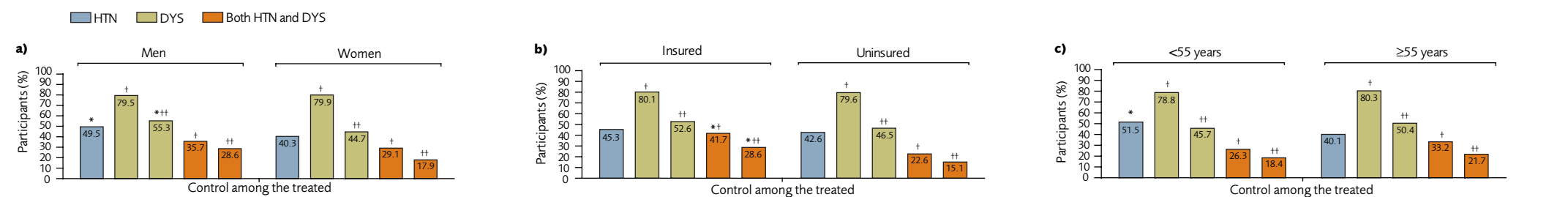
Prevalence definitions: For HTN, BP \geq 140/90 mm Hg or on medication; for DYS, TC \geq 240 mg/dL or on medication; for HTN and DYS, BP \geq 140/90 mm Hg and TC \geq 240 mg/dL or on medication. Asterisks denote significance values versus a) the female subgroup; b) the uninsured subgroup; and c) the older age group (**P* \leq 0.05, ***P* \leq 0.001, ****P* \leq 0.0001)

Figure 3. Treatment of HTN, DYS, or both HTN and DYS among prevalent cases stratified by (a) gender; (b) insurance status; and (c) age



Prevalence definitions: For HTN, BP \geq 140/90 mm Hg or on medication; for DYS, TC \geq 240 mg/dL or on medication; for HTN and DYS, BP \geq 140/90 mm Hg and TC \geq 240 mg/dL or on medication. Asterisks denote significance values versus a) the female subgroup; b) the uninsured subgroup; and c) the older age group (**P* \leq 0.05, ***P* \leq 0.001, ****P* \leq 0.0001)

Figure 4. Control of HTN, DYS or both HTN and DYS among treated cases stratified by (a) gender; (b) insurance status; and (c) age



Prevalence definitions: For HTN, BP \geq 140/90 mm Hg or on medication; for DYS, TC \geq 240 mg/dL or on medication; for HTN and DYS, BP \geq 140/90 mm Hg and TC \geq 240 mg/dL or on medication. Control definitions: For HTN, BP $<$ 140/90 mm Hg; for DYS, TC $<$ 240 mg/dL* or TC $<$ 200 mg/dL**; for both HTN and DYS, BP $<$ 140/90 mm Hg and TC $<$ 240 mg/dL* or TC $<$ 200 mg/dL**. Asterisks denote significance values versus a) the female subgroup; b) the uninsured subgroup; and c) the older age group (**P* \leq 0.05, ***P* \leq 0.001, ****P* \leq 0.0001).

LIMITATIONS

- Participants' medical histories, including medication use, were based on self-reports. Possible under-reporting of medication use may have resulted in an under-reported prevalence of HTN and/or DYS. Moreover, treatment rates may not reflect nutritional or other non-pharmacologic approaches that are common in certain ethnic minority groups.
- Results are based on single measurements of BP, TC, and glucose level per participant.
- TC was used to determine goal attainment since low-density lipoprotein cholesterol levels were available in only a fraction of participants.

DISCUSSION

- In this primary prevention population of young, healthy Hispanic Americans, the prevalence of HTN was slightly higher than the rates reported in the American Heart Association's Heart Disease and Stroke Statistics – 2007 Update, while the prevalence of DYS was similar.⁷ Prevalence of combined HTN and DYS (11%) was similar to a recent report from NHANES 2001–2002 (10% among Hispanics).⁶
- Treatment and control rates of HTN were suboptimal, and were lower than the rates seen in an analysis of Mexican-Americans from NHANES 1999–2002 data.⁸ Treatment and control rates of DYS were slightly better than those of HTN, and were better than the rates seen in an analysis of Mexican-Americans from NHANES 1999–2002 data.⁹ Treatment and control rates for both HTN and DYS were substantially higher than what was recently reported in NHANES 2001–2002.⁶

- Control rates for DYS, and for both HTN and DYS, may be higher due to the sole inclusion of a healthy, primary prevention population attending health screening events (which may select for those more interested in their health and thus more aware of, and likely to seek treatment for, their conditions) in this sample compared with previously reported national data from NHANES among Hispanics.⁶
- The predominance of women in this population is not surprising, as women in the Hispanic family/community are more likely to be interested in their health and willing to seek information.

CONCLUSIONS

- Substantial prevalence of HTN and DYS was demonstrated in this large sample of healthy Hispanic participants. One-tenth of our sample had both HTN and DYS.
- Less than half of prevalent cases of HTN and/or DYS received treatment.
- Less than one-third of those with both HTN and DYS were controlled to goal levels for both conditions.
- Intensified efforts to identify and improve treatment and control rates in Hispanics with HTN and DYS are warranted.