

High Blood Pressure in an Indigenous Community in Panamá: Prevalence and Independent Correlates

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Background

- Hypertension is a significant health problem affecting over 30% of the global population. It has been linked with adverse health outcomes of cardiovascular disease, stroke, and chronic renal disease.
- There are approximately 400 million indigenous people in the world. They experience a disproportionate amount of poor health outcomes and increased burden of both chronic and infectious disease.
- The Kuna are a indigenous population living in indigenous zones on the mainland and islands just of the eastern coast of Panamá.

Figure 1: Location of San Blas Indigenous Community in Panamá



- Previous studies claimed island dwelling Kuna had little to no age related increase in blood pressure.
- A recent study investigating the prevalence of hypertension in Panamá concluded that the overall prevalence of hypertension was 29.6% but that prevalence was lower in mainland Kuna Indians at 11.4%.

Objective

- To measure the prevalence of hypertension in a Kuna island population separated from the main land and understand the sociodemographic correlates of hypertension

Methods

- Research Approval:** The current research was developed by Indigenous Health International (IHI), and approved 501(c)(3) non-profit organization, in collaboration with the Panamá Ministry of Health, the Kuna Congress, and the Gorgas Institute in Panamá.
- Survey Population:** Adults on an indigenous island identifying as Kuna Indians were administered a paper survey.

Methods cont.

Outcomes

- Anthropomorphic measures and blood pressure were taken at the time of the survey.
- Hypertension Diagnosis: Any blood pressure above two clinically accepted cut-offs 140/90mmHg and 130/80mmHg
- Unrecognized Hypertension: Individuals who responded no to having been told by a healthcare professional they had high blood pressure or hypertension, but would be diagnosed with hypertension based on the 130/80 cut-point

Statistical Analysis

- Univariate analyses were used to compare differences for hypertension at both cut-offs and unrecognized hypertension.
- Unadjusted and adjusted logistic models were run to understand individual correlates of hypertension (130/80mmHg cut-point) and unrecognized hypertension.

Results

Table 1: Sample Demographics

n=211	Percent (%)
Sex	
Male	27.0
Female	73.0
Age in years	
18-39	40.1
40-59	32.4
60-90	27.5
Education	
None	17.6
Primary	28.6
Secondary/University	53.8
Monthly Income	
Don't Know	51.9
<\$250	37.0
>=\$250	11.1
Married	
No	29.6
Yes	70.4
Literacy	
No	20.7
Yes	79.3
Family Dependents	
1 to 5	25.0
6 to 8	29.3
9 to 11	24.0
12 to 22	21.6

Results cont.

Table 2: Prevalence of Hypertension

	HTN above 140/90mmHg		HTN above 130/80mmHg	
	Percent (%)	95% CI	Percent (%)	95% CI
Overall	6.2	3.32-10.30	16.6	11.83-22.31
Sex				
Male	10.5	3.96-21.51	31.6***	19.90-45.24
Female	4.5	1.85-9.14	11.0***	6.56-17.09
Age				
18-39	6.0	1.98-13.50	8.4*	3.46-16.61
40-59	3.0	0.36-10.37	17.9*	9.61-29.20
60-90	10.5	3.96-21.52	24.6*	14.13-37.76
Education				
None	5.7	0.70-19.16	14.3	4.81-30.26
Primary	3.5	0.43-12.11	17.5	8.75-29.91
Secondary/University	7.5	3.28-14.20	17.7	11.04-26.33
Monthly Income				
Don't Know	2.8***	0.58-7.90	8.3***	3.88-15.23
<\$250	5.2***	1.43-12.77	23.4***	14.48-34.40
>=\$250	26.1***	10.23-48.40	34.8***	16.38-57.26

Bold p=0.05--1 *p<0.05, **p<0.01, ***p<0.001

Table 3: Prevalence of Unrecognized Hypertension

	Percent (%)	95% CI
Sex		
Male	25.0**	14.39-38.37
Female	8.8**	4.79-14.65
Age		
18-39	7.3	2.73-15.25
40-59	14.7	6.97-26.17
60-90	17.8	8.91-30.40
Education		
None	15.6	5.27-32.79
Primary	10.7	4.03-21.87
Secondary/University	14.6	8.39-22.88
Monthly Income		
Don't Know	7.7*	3.38-14.59
<\$250	18.9*	10.75-29.70
>=\$250	22.7*	7.82-45.37

Bold p=0.05--1 *p<0.05, **p<0.01, ***p<0.001

Table 4: Independent Correlates

	HTN above 130/80mmHg Odds Ratio (95% CI)	Unrecognized HTN Odds Ratio (95% CI)
Sex		
Male (Ref)	Ref	Ref
Female	0.50 (0.17-1.52)	0.35 (0.11-1.15)
Age		
18-39 (Ref)	Ref	Ref
40-59	2.77 (0.83-9.22)	1.88 (0.53-6.72)
60-90	3.46 (0.77-15.51)	2.22 (0.47-10.53)
Education		
None (Ref)	Ref	Ref
Primary	0.83 (0.16-4.24)	0.40 (0.07-2.36)
Secondary/University	1.30 (0.22-7.65)	0.71 (0.10-4.75)
Monthly Income		
Don't Know (Ref)	Ref	Ref
<\$250	3.13* (1.02-9.60)	3.42* (1.01-11.52)
>=\$250	7.37** (1.76-30.90)	3.96 (0.82-19.20)
Married		
No (Ref)	Ref	Ref
Yes	1.13 (0.38-3.31)	1.14 (0.36-3.61)

Bold p=0.05--1 *p<0.05, **p<0.01, ***p<0.001

Conclusions

- 16.6% of the Kuna population had hypertension based on the 130/80mmHg cut-point.
- The prevalence was significantly related to gender with men having higher prevalence.
- Recognition of hypertension was also lower in men with a quarter of men being unaware of their condition previously.
- Increasing age was associated with increasing prevalence, which is consistent with research in multiple populations.
- A novel finding was the impact of income on hypertension. Individuals with higher incomes were more likely to have hypertension, as well as unrecognized hypertension.

Future Directions

- The identification of the prevalence of unrecognized hypertension in this indigenous communities lends an opportunity to greatly improve health with interventions that increase recognition and treatment focused on sub-populations found to be at an increased risk.
- Further research is needed to understand the unique relationship income has with hypertension in this population.

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