

Social Gradient of Cardiovascular  
Risk Factors in Poland  
Baseline Profile of the Polish  
Norwegian Study (PONS) in Kielce

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# Background

- The burden of cardiovascular disease (CVD) is increasing in Central and Eastern Europe
- The Polish Norwegian Study (PONS) is a prospective cohort study in South-Eastern Poland (Kielce District) which aims to investigate the occurrence and risk factors for CVD and other chronic diseases

# Objective

- To perform a preliminary analysis of the baseline prevalence and correlates of CVD risk in the PONS Cohort
  - emphasis on social gradient of CVD risk

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# Methods

- PONS is a population-based cohort studies of healthy residents in Kielce aged 45-64
  - preliminary analysis of 3,862 participants
- Structured lifestyle and food frequency questionnaires are administered
- Diabetes and hypertension were self-reported; anthropometric characteristics were measured and blood samples were drawn and analyzed
- Multivariate logistic regression was used to determine adjusted odds ratios (OR) for associated factors, using Stata version 9

## Characteristics of study population (N=3,862)

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Characteristics	N	%
Female sex	2,572	66.6%
Age 55-64	2,483	64.3%
Secondary education	1,710	44.3%
Higher education	1,235	32.0%
Urban residence	2,680	69.4%

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## Prevalence of CVD-associated conditions

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Condition	N	%
Diabetes	227	5.9%
Hypertension	1,483	38.4%
Obesity	1,184	30.7%
Hypercholesterolemia	743	19.2%
Ever tobacco smoking	1,989	51.5%

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# Sociodemographic factors and CVD-associated conditions

Characteristics	Diabetes	Hypertension	Hypercholesterol.	Obesity
Age 55-64	3.41 (2.33, 4.98)	2.25 (1.95, 2.61)	1.29 (1.08, 1.53)	1.51 (1.30, 1.76)
Female sex	0.70 (0.53, 0.92)	0.93 (0.80, 1.07)	1.02 (0.86, 1.21)	1.01 (0.87, 1.18)
Secondary educ.	0.43 (0.31, 0.59)	0.72 (0.60, 0.85)	0.94 (0.77, 1.16)	0.69 (0.58, 0.81)
Higher education	0.33 (0.23, 0.48)	0.52 (0.43, 0.63)	0.91 (0.73, 1.14)	0.44 (0.38, 0.54)
Urban residence	1.20 (0.88, 1.64)	1.03 (0.89, 1.20)	0.99 (0.83, 1.19)	0.76 (0.65, 0.89)



# Association between obesity and CVD-associated conditions

Condition	Odds ratio	95% CI	p-value
Diabetes	2.83	2.14, 3.75	<0.001
Hypertension	3.14	2.71, 3.64	<0.001
Hypercholesterolemia	0.90	0.75, 1.07	0.24

# Sociodemographic factors and tobacco smoking

Condition	Odds ratio	95% CI	p-value
Female sex	0.50	0.43, 0.57	<0.001
Age 55-64	1.03	0.90, 1.18	0.63
Secondary education	0.91	0.77, 1.08	0.29
Higher education	0.76	0.64, 0.91	0.003
Urban residence	1.26	1.09, 1.46	0.002

# Association between tobacco smoking and CVD-associated conditions

Condition	Odds ratio	95% CI	p-value
Diabetes	1.26	0.96, 1.65	0.10
Hypertension	0.96	0.85, 1.10	0.56
Hypercholesterolemia	1.03	0.88, 1.21	0.72

# Conclusions

- The population in Kielce is experiencing significant burden of CVD-associated conditions and risk factors
- There is a strong social gradient of cardiovascular risk
- The prospective study will contribute to elucidate the patterns of CVD risk and to develop aggressive risk factor control measures