Cardiovascular risk factors in a homeless population

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A growing body of research has been focusing on the association between cardiovascular disease and socioeconomic factors. However, cardiovascular risk has seldom been addressed in populations with an extremely underprivileged socioeconomic condition, such as the homeless.

Homelessness is an example of social discrimination, strongly associated with poverty, which affects millions of persons worldwide. This is essentially an urban phenomenon that results from a complex interplay between individual and societal factors, such as unemployment, family breakdown, mental illness or substance abuse. It has been described as an important health determinant, and the understanding of the relation between homelessness and cardiovascular risk may contribute to improve the work developed by the institutions that provide social support to these populations, and ultimately influence public health policies towards the reduction of inequalities and a gradual social inclusion of the homeless.

This dissertation aimed to assess the effect of different recruitment settings [homeless hostels (HH) and institutions that manage meal programs (MP)] in the estimates of the distribution of cardiovascular risk factors among the homeless, and to quantify the association between homelessness and these health determinants, by comparing homeless subjects with the general population (GP).

We invited all the homeless classified as “houseless” according to the European Federation of Organizations Working with the People who are Homeless (FEANTSA) that were attending any of two HH and two MP in the days selected for the evaluations. The response proportions were 78.4% (n=91) in HH and 76.4% (n=55) in MP. Only one participant was present in both settings, but refused the first invitation and was considered in only one sample. We selected a subsample of non-homeless Porto dwellers from the participants in the EPIPorto cohort follow-up conducted between 2005 and 2008, matched (1:1) with the Portuguese homeless from Porto. A match could not be found for 12 subjects, most of them young and with very low education levels. All subjects were evaluated in the places where they were recruited, by trained staff, using a structured questionnaire to characterize the
sociodemographic and behavioral characteristics (including tobacco and alcohol consumption), medical history (including previous diagnosis of hypertension, diabetes and dyslipidemia, and medication use) and healthcare access/utilization. A physical examination was also performed to evaluate blood pressure, weight and height and waist circumference. We compared the distribution of cardiovascular risk factors between the homeless selected in HH and MP, and between the homeless and the general population, through adjusted prevalence ratios (PR) and 95% confidence intervals (95%CI), computed using Poisson regression, or adjusted β coefficients with 95%CI, computed using linear regression, for categorical and continuous variables, respectively.

The overall median age of the homeless participants was 45 years (range: 18 to 77 years), most were men (86.3%), unemployed (78.8%), and less than 10% were aged above 60 years. The median duration of homelessness was 24 months (range: 1 to 480 months). There were no statistically significant differences between the sociodemographic characteristics of the two sub-samples. Regarding homelessness status and behaviour characteristics, MP reported a twofold higher prevalence of previous consumption of drugs (18.7% vs. 32.7%, P=0.054) and imprisonment (16.5% vs. 29.1%, P=0.071). When comparing HH with MP, there were no significant differences regarding most cardiovascular risk factors, except for the lower mean systolic (β=-10.37, 95%CI: -17.02 to -3.72) and diastolic (β=-6.82, 95%CI: -10.85 to -2.78) blood pressures among the MP. Regarding the comparison with the general population, smoking was significantly more frequent among the homeless (PR=1.47, 95%CI: 1.04 to 2.08) in contrast with alcohol drinking, with a similar prevalence of current drinkers in the two groups. The homeless presented lower mean body mass index (β=-1.64, 95%CI: -2.82 to -0.46) and waist circumference (β=-4.18, 95%CI: -7.16 to -1.21), and were less often overweight (PR=0.63, 95%CI: 0.40 to 0.98) and obese (PR=0.47, 95%CI: 0.24 to 0.92). The homeless were nearly 5 times less likely to report dyslipidemia (PR=0.21, 95%CI: 0.10 to 0.43). No statistically significant differences were observed regarding the distribution of other cardiovascular risk factors.

**Conclusions:**
- Among the homeless there were small differences in the distribution of cardiovascular risk factors according to the place of recruitment, except for lower blood pressures observed in those selected in MP in comparison with the subsample recruited in HH.
- Obesity was less frequent and smoking more likely to occur in the homeless than in the general population, independently of the differences in socio-demographic factors observed between these populations.