

SESSION 4-6

« Methodology »

Thursday, September 12th

Room : E 107 à 16h30

Julie Méline

Town : Paris, France

Job Title : Postdoctorante

Company : Inserm

Title of the presentation : « Transportation noise (road, rail, air) in the residential and workplace neighborhoods and blood pressure in the Ile-de-France region »

Abstract :

Julie Méline, Andraea Van Hulst, Basile Chaix Key words: Transportation noise, RECORD study, blood pressure, neighborhood environments, residence and workplace Background: In the Ile-de-France region, approximately 20 % of residents are exposed to levels of transportation noise exceeding European thresholds. Associations between road traffic noise at the place of residence and higher blood pressure (systolic blood pressure, SBP) and (diastolic blood pressure, DBP) or hypertension have been adequately documented whereas associations with air, rail or combined road, rail, air (RRA) traffic noise has been rarely investigated. It has also been shown that individual/neighborhood socio-economic factors are associated with higher blood pressure, but few studies take into account these confounders in the relationship between noise and hypertension. In this study, we take these individual/neighborhood confounding factors into account and we consider multiple sources of outdoor noise exposure at and around the place of residence and the workplace. Methods: We combined Geographic Information Systems and epidemiological methods. 500m radius street network buffers were defined around the place of residence of 7290 participants and the workplace of 4331 participants of the RECORD Cohort in Ile-de-France. Estimated outdoor traffic noise levels (road, rail, air) and combined outdoor RRA traffic noise levels were assessed at each place of residence and workplace and in each of these buffers. Linear regression models were estimated between each noise variable and SBP/DBP, after adjustment for 1) individual socio-demographic variables, 2) neighborhood urban types and socioeconomic variables, and 3) risk factors for high SBP/DBP. Results: Associations were documented between higher outdoor road or combined RRA traffic noise estimated at the workplace and higher SBP/DBP, after adjustment for individual and neighborhood confounders, including risk factors of hypertension. No association was documented with outdoor rail traffic noise estimated at the place of residence and around the residence and

no relationship was tested with outdoor air traffic noise because of a lack of statistical power. Discussion: Associations between outdoor road or combined RRA traffic noise at the workplace and higher SBP/DBP may be attributable to the fact that participants are more likely to be exposed to high levels of noise in the workplace geographic environment where they are during the day. Similarity of associations of road traffic noise and combined RRA noise variables with SBP or DBP suggests that the role of road traffic noise is predominant in the association between noise and blood pressure. Finally, the absence of associations between rail traffic noise and SBP or DBP may be attributable to the weak exposure of places of residence and workplaces to rail traffic noise. Perspectives: The relationship between higher road traffic noise and higher blood pressure shows that additional urban planning measures of protection against road traffic are needed. To better understand why only exposure to outdoor noise at the workplace was associated with blood pressure, our future work will combine GPS tracking, assessment of noise levels with noise sensors and ambulatory monitoring of blood pressure.

Simone Santos

Town : Rio de Janeiro, Brazil

Job Title : A multilevel approach for studying the association between neighborhood characteristics and self-rated health in the Brazilian Pró-Saúde Study

Company : Oswaldo Cruz Foundation

Title of the presentation : « A multilevel approach for studying the association between neighborhood characteristics and self-rated health in the Brazilian Pró-Saúde Study »

Abstract :

Introduction: The influence of neighborhood characteristics on self-rated health (SRH) has been scarcely studied, particularly in middle-income countries like Brazil. We report results of the association between socioeconomic position indicators of neighborhoods and individual self-rated health in the Pró-Saúde cohort study, taking into account both group and individual characteristics. Methods: A multilevel approach using hierarchical models was applied to analyze relations between indicators of socioeconomic characteristics of 621 neighborhoods of residence and self-rated health of 3,054 University employees living in Rio de Janeiro city who participate in the Pró-Saúde study. Neighborhoods were created by using the SKATER algorithm, a tool for area regionalization to group small areas (TerraView software). Census tracts were grouped based on four census tracts indicators and considering a minimum population of 5,000 people living in the delimited neighborhood. Results: Adjusting for individual factors, such as individual income per capita, educational level, age, sex, ethnicity, health related behaviors and presence of chronic diseases, low neighborhood income level and higher number of inhabitants per residence were significantly associated

with poor SRH. Subjects living in neighborhoods with medium income level were 34% more likely to rated their health as poor. Those living in areas in which higher density of persons per household were an odds 50% higher of presenting poor SRH. Conclusion: Neighborhood context influence SRH, beyond the effect of individual factors. Worse socioeconomic conditions of the neighborhood affect health negatively, increasing the chance of poor SRH.

Ted Schrecker

Town : Ottawa, Canada

Job Title : Clinical scientist

Company : Bruyère Research Institute

Title of the presentation : « Epidemiological worlds: The new methodological frontier for metropolitan health »

Abstract :

The authors of a recent article on health and urban planning observe that “[r]ich and poor people live in very different epidemiological worlds, even within the same city” (1, p. 2079). This is more than a statement of the obvious; it provides the basis for important methodological advances in the study of social determinants of health in metropolitan areas. Organizing research around the concept of different epidemiological worlds bypasses the distinction, increasingly recognized as conceptually problematic, between compositional and contextual factors in studies of place and health, and acknowledges that place of residence is only one dimension of place-related vulnerabilities – i.e., one’s epidemiological world is defined by far more than place of residence. More importantly, it suggests a direct challenge to epidemiologists’ focus on controlling for all variables but one, recognizing that health is influenced by a complex set of real-world exposures that occur simultaneously or sequentially, and that the entire range of those exposures is likely to vexhibit socioeconomic gradients. Thus, differences among epidemiological worlds cannot be adequately understood using only the methods of epidemiology. Rather, the concept invites integration of multiple disciplinary perspectives with a focus on how and why some people have far more control than others over their epidemiological worlds. I illustrate using examples from the literature that include observational research and “geo-ethnographies” (2) of low-income households coping with the demands of employment and child care on limited resources; work emerging from the environmental justice movement on the uneven distribution of toxic exposures; anthropological research on spatial segregation and urban fortification; and political economy studies on how neoliberal globalization creates opportunities for gentrification and real estate capitalism, but also a new range of vulnerabilities for those without the price of admission (3). These are just examples; my aim is to stimulate interest in a new multidisciplinary paradigm for studying of metropolitan health, more effective than existing

approaches in explicating the consequences of the “inequitable distribution of power, money, and resources” that was central to the work of the WHO Commission on Social Determinants of Health (4). (1) Rydin Y, Bleahu A, Davies M, Dávila JD, Friel S, De Grandis G et al. Shaping cities for health: complexity and the planning of urban environments in the 21st century. *The Lancet* 2012 June 2;379(9831):2079-108; <http://linkinghub.elsevier.com/retrieve/pii/S0140673612604358>. (2) Matthews SA, Detwiler JE, Burton LM. Geo-ethnography: Coupling Geographic Information Analysis Techniques with Ethnographic Methods in Urban Research. *Cartographica: The International Journal for Geographic Information and Geovisualization* 2005;40:75-90; <http://dx.doi.org/10.3138/2288-1450-W061-R664>. (3) Schrecker T, Barten F, Mohindra KS. Metropolitan health in a globalizing world. In: Schrecker T, editor. *Ashgate Research Companion to the Globalization of Health*. Farnham, Surrey: Ashgate; 2012: p. 191-204. (4) Commission on Social Determinants of Health. *Closing the Gap in a Generation: Health equity through action on the social determinants of health (final report)*. Geneva: World Health Organization; 2008; http://whqlibdoc.who.int/publications/2008/9789241563703_eng.pdf.

Rajitha Wickremasinghe :

Town : Colombo, Sri Lanka

Job Title : Chercheur

Company : University of Kelaniya

Title of the presentation : « Non-communicable diseases are not confined to urban populations of Sri Lanka. »

Abstract : Unknown