

EPC 2020: How do different social groups perceive and define outdoor air pollution?

Abstract

Urban areas are growing fast worldwide and there is an increasing concern about the relations between urbanization, environmental threats, the quality of living spaces and human health. Living in an unhealthy living environment can have an important negative impact on one's health. One element that contributes to an unhealthy living environment is outdoor air pollution. Many studies find negative associations between the level of outdoor air pollution and health. It remains unclear however, whether this association is the same for everyone. Therefore, in this study we make use of an intersectionality approach. More specifically, we analyse whether the influence of living in a polluted environment on health may be different for men versus women, for lower versus higher educated, for young versus old people, for foreign-born versus native-born communities. Having an understanding about how different social groups perceive and define outdoor air pollution is key in understanding their perception of exposure and is a first step in understanding and explaining the impact of air pollution on health. Following a quantitative analysis of these relationships, we will now investigate via in-depth face-to-face interviews with citizens of the Brussels Capital Region (Belgium) how different social groups perceive and define air pollution. We also aim to identify the different cultural/mental schemes and world views employed by Brussels citizens to identify certain elements as polluting and others as not polluting. The qualitative analysis in the field of environmental health inequalities presented in this study is quite innovative.

Key words: Environmental epidemiology – Brussels Capital region – outdoor air pollution – intersectionality approach – qualitative research – perception on air pollution – social background factors – lay perceptions – symbolisch interactionisme

Extended abstract

State of the art

Urban areas are growing fast worldwide and there is an increasing concern about the relations between urbanization, environmental threats, the quality of living spaces and human health. A healthy living environment is a prerequisite for having a good health and consequently living in an unhealthy living environment can have an important negative impact on one's health. One element that contributes to an unhealthy living environment – a so called **environmental negative** – is outdoor air pollution.

Since the 1930 Meuse Valley episode in Belgium (Nemery et al. 2001), the London fog of December 1952 and particular studies during the last 20 years, the number of studies showing **adverse health effects** of short and long term exposure to **outdoor air pollution** has grown substantially (Anderson et al. 2012, West et al. 2016). Evidence from these studies underline the existence of a consistent association between short- term elevations in number of air pollutants and increased mortality and hospitalization rates (Wang et al. 2014, Samoli et al. 2016). In Brussels for instance, recent increases

in the concentrations of several air pollutants are associated with increases in respiratory medication sales (Casas et al. 2016). Studies reporting long-term exposure to air pollution show

- 1) an inverse association with life expectancy;
- 2) a large global burden of respiratory and allergic diseases, including asthma, chronic obstructive pulmonary disease, pneumonia, and possibly tuberculosis;
- 3) and a large global burden of cardiovascular diseases such as stroke (Khafaie et al. 2016).

It is now widely recognized that exposure to outdoor air pollution contributes to a broad array of acute and chronic health effects, ranging from minor physiological impacts to death from respiratory and cardiovascular disease. It is also recognized that the effects on human health are large and widespread. In 2015, air pollution was responsible for 19% of all cardiovascular deaths worldwide, 24% of ischemic heart disease deaths, 21% of stroke deaths, and 23% of lung cancer deaths (GBD Mortality and Causes of Death Collaborators 2016).

There is thus substantive evidence to assume that there exists an **association between one's living environment** – or more precisely the level of outdoor air pollution – **and health**. But, is the association between the quality of the living environment and health the same for everyone? In this study we will introduce an **intersectionality approach** assuming that what it means to live in a polluted environment and what the health implications are, may be different for men versus women, for lower versus higher educated, for foreign-born versus native-born communities. In this sense the living environment can be constituted through cultural meanings and processes (Bauer, 2014).

Increasingly, human-environmental interactions are recognized as a key determinant of human health (Pleasant, Scanlon, & Pereira-Leon, 2013). Hereby, the **importance of qualitative research** on the perceptions of the living environment and its impact on health are being increasingly recognized. Brown (2003) states in this respect that even when quantitative data are needed to determine the existence of environmental health effects, qualitative data are necessary to understand how people and communities experience and act on these problems, as quantitative data can only render an imperfect or partial picture of health effects and their causes.

Nevertheless, despite this longstanding appreciation of qualitative methods by epidemiologists and an increasing recognition of the importance of qualitative research, the actual amount of qualitative research on this topic is rather limited.

Our research contributes to the literature through a qualitative research using an intersectionality approach. More specifically, this study will investigate whether different social groups have different usage, perceptions and convictions about their living environment by analysing **how different social groups perceive and define air pollution**. The aim of this research is thus how air pollution is perceived and defined by on the one hand experts (expert knowledge) and on the other hand laymen (lay knowledge) here included the perceptions and definitions of men and women, of different age groups, of different socioeconomic groups and of different migrant communities.

Expert knowledge is understood as 'objective' knowledge resulting from scientific often statistical research (for example through experimental studies, epidemiological surveys or probabilistic risk analyses) by experts that is based on abstract facts whereas lay knowledge is understood as 'subjective' knowledge that is not grounded in or validated by scientific research.

Having an understanding about how **lay-people** perceive and define outdoor air pollution is key in understanding their perception of exposure and is a first step in understanding and explaining the impact of air pollution on health. Also, understanding this perception is important in order to try to transform understandings about air pollution and help frame health and/or environmental campaigns more effectively towards specific audiences.

Research questions and methodology

In this research we aim at identifying the different cultural/mental schemes and world views that are employed by Brussels citizens to identify certain elements as polluting and others as not polluting. Also, via thought-listing methodology and cluster analysis we will try to uncover the mental schemes through which Brussels citizens perceive air pollution.

In this research we will answer following research questions:

- What is the definition of air pollution from a scientific perspective?
- What is the definition of air pollution from a layman's perspective?
 - What associations do people make when thinking about air pollution in general?
 - What associations do people make when thinking about air pollution in their living environment?
 - How do people define air pollution?
 - What arguments/schemes do people employ to depict/categorize an element as being polluting or not polluting?

Hereby we always take intersectionality into account. We will investigate if and if so, in what way different social groups perceive air pollution differently.

As mentioned by Bauer (2014) living **environments are constituted through cultural meanings and processes**. A fundamental step in/before recognizing a given condition – environmental negatives such as outdoor air pollution – is the classification and identification of its constituents as being an anomaly. Perceptions of risk and danger vary systematically according to a small number of cultural biases or world views which can be identified in different contexts and societies (Bickerstaff, 2004). **What is seen as pollution or which elements are defined as polluting elements might differ according to different cultural schemes**. All cultures define what is clean and what is dirty, although the principles that order these classifications may differ.

Brussels is the city where the study is conducted. We are doing in-depth interviews with at least 60 persons living in different neighbourhoods within the Brussels Capital Region. In order to respect the intersectional character of the research, we recruit respondents with different characteristics taking into account age, gender, socio-economic situation and migration background.

This research is part of a broader research project that investigates the association between environmental positives (public green space) and environmental negatives (air pollution) on health. To question in depth the perception of Brussels citizens on these environmental positives and negatives an elaborative questionnaire was developed with open questions. The interviews are face-to-face and the duration of an interview is 90 minutes. Interviews are conducted in both French and Dutch. The interviews are recorded and transcribed. The transcriptions will be coded and analyses conducted in order to understand if and in what way outdoor air pollution is defined and perceived among different social groups.

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