

Safe and sound in the city: gendered pedestrian experiences in an industrial-residential neighbourhood

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Abstract

Calls for a more diverse soundscape approach have recently been raised, to investigate a variety of urban experiences. In this paper, we take a look at how gender and soundscape co-influence urban experiences. Through commented walks, 12 women and 11 men were interviewed about their experience walking in an industrial-residential neighbourhood. We analyzed spontaneous mentions of sound and safety as a function of gender. Sound was linked to safety but implicitly and in two ways: sound informs about 1. road traffic risks (e.g., sound of a large truck passing close), or 2. presence of others in a space and time perceived as unsafe (e.g., knowing there are people around in case something happens). Women and men talked about road traffic risks in similar proportions and with similar themes (e.g., danger, stress, mitigation strategies). However, only women mentioned sound as indicating the (reassuring) presence of others. These results indicate implicit connections between safety and sound: sound can reflect danger (traffic risks) but also life and safety (presence of others), emphasizing that quiet is not always the goal, especially in the public space. We also discuss how different genders experience sound and safety while walking in public spaces.

Keywords: *soundscape, public space, perceived safety, gender, commented walks*

1. Introduction

The soundscape approach calls for a shift in how sound is considered in urban environments, focusing on everyday experience rather than acoustic levels [1]. And recently, calls for more diversity in investigation have

been raised [2], [3], chief among them the need to question the “universalist” tones of research conducted so far [4].

In this paper, we take a look at how gender and soundscape co-influence the urban experience. To the best of our knowledge, while there has been work on the links between safety and soundscape [5], [6], [7], little work has been published on this question with the added element of gender. From urban and sociology studies, we know that women feel less comfortable and less safe in the public space [8] despite having to use it more [9] (through for example, having less access to a car [10]). Peripheral soundscape evidence also point to women using the public space more in groups than men so that they evaluate the sound environment as less eventful and more pleasant [11]. Exploring the influence of soundscape on perceived safety directly, the gender differential for perceived safety is corroborated in the laboratory, regardless of the sound environment played [12], [13]. Women also feel like they cannot take as much space, be as loud as men, in the public realm [14]. In the present work, we explore this three-way connection between safety, gender, and sound(scape) in a neighbourhood with safety and noise issues. To ensure we allowed space to explore a diversity of everyday lived experiences, we conducted commented walks with residents and workers of the neighbourhood. Commented walks with participants familiar with the space aim to capture the immediate sensory experience mediated by memory representations elaborated over time, in the participants’ own words [15]. Participants were not specifically guided to discuss how the sound environment influences their perception of safety. Rather, sound was one of many elements of the urban experience. In that way, we could assess how participants of different genders spontaneously associate safety and sound(scape)s.

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2. Methods

The data analyzed here were collected between June and November 2022 [16] in the neighbourhood adjoining the port of Montreal (Canada), where sound and safety are major concerns. In this neighbourhood, tensions exist between the industrial, harbour, and residential activities, including in terms of soundscape. Additionally, the area is isolated from the rest of the city by highways and train tracks, raising safety concerns when residents and workers cross industrial lots and train tracks as shortcuts. Finally, questions of homelessness and drug dealing are a concern for residents at night.

2.1 Studied neighbourhood

Noise and safety have been major concerns in the studied neighbourhood for decades because of the close cohabitation between the port, associated industries, and residential areas. There are only four points of vehicular and pedestrian access to this part of the city, despite being home to two residential “enclaves” (visible on trajectories C and D in Figure 1). The area is surrounded by highways and train tracks with a steady throughput of freight trucks and trains. Many residents and workers cross on foot private industrial properties and the train tracks as shortcuts, and many

drivers do not respect the speed limits and red lights in some parts of the area.

2.2 Research protocol

Using the commented walk method [15], residents and workers of the area were interviewed individually in and around the neighbourhood, along seven different itineraries (see Figure 1).

On each walk, a participant was joined by three experimenters: one to conduct the semi-structured interview, another to collect photos and GPS data, and a third one to collect acoustic measurements from a few meters behind. The participant was equipped with a low-cost binaural recording system (SonicPresence SP15C Binaural Microphone) to capture the interview and the ambient sound environment. This paper focuses on the analysis of the interview transcriptions.

2.3 Participants and commented walk procedure

Participants were recruited via social media pages associated with the area, presentations at community meetings, and at meetings of businesses active in the area. 23 interviews were collected: 12 participants identified as women and 11 as men; 21 in French and two in English; 15 residents and 8 workers of the

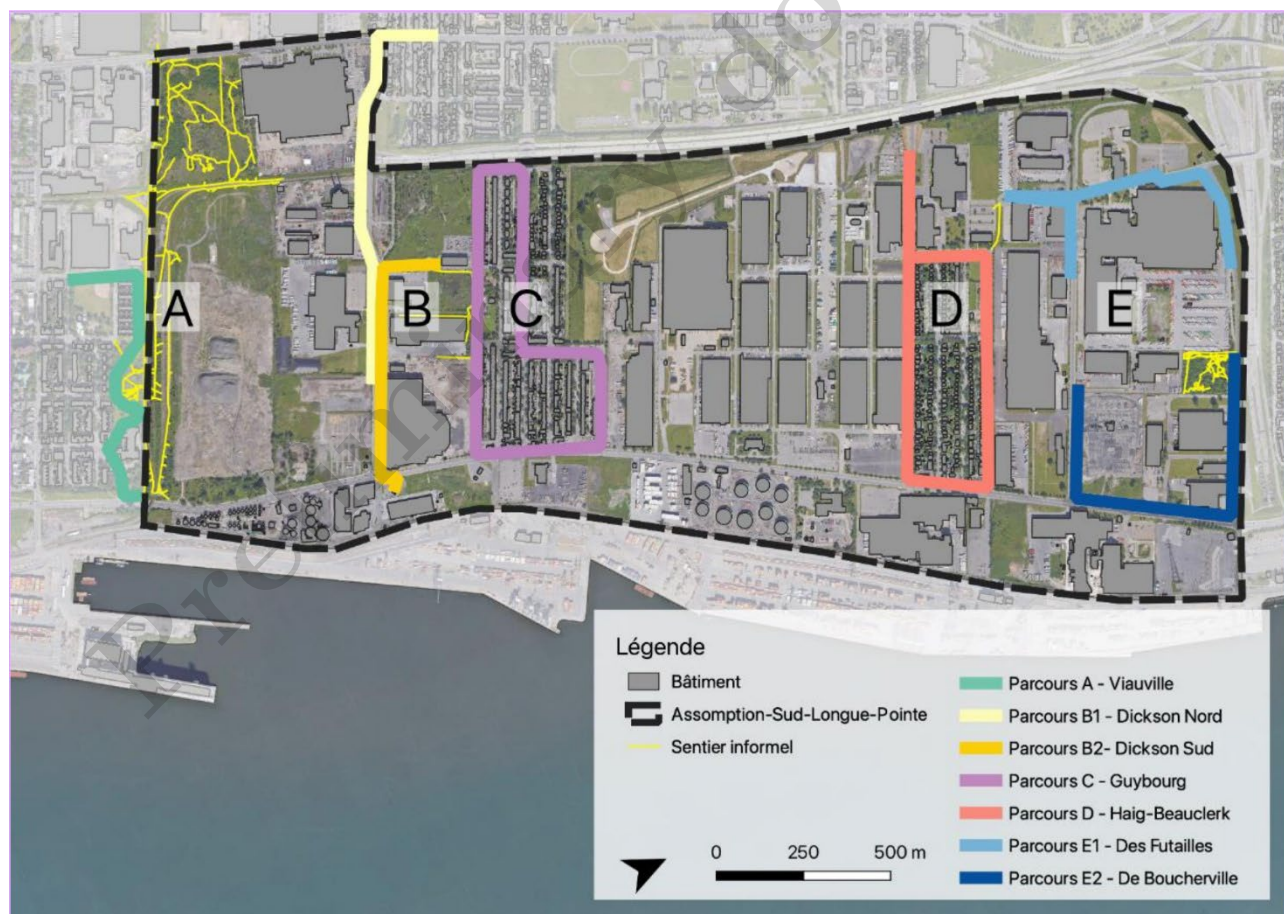


Figure 1. Path for the seven itineraries. From "Repenser l'aménagement de l'interface ville-port à Montréal : le secteur Assomption Sud-Longue-Pointe" by Observatoire des milieux de vie urbains and Ville Sonore, 2023.

neighbourhood. All team members agreed that theme saturation was reached.

Participants chose one of the seven available walks at a time of their preference. When starting the walk, the participant was provided with the aforementioned binaural microphones and reminded that they can choose to stop wherever or whenever on the walk and describe their experiences, as well as divert from the original walk trajectory (they were encouraged to share alternate routes, aspects they disliked or liked etc.). Participants were also encouraged to take moments in which they walked without talking, to be able to take in their environment. The interviews lasted between 30 mins and 1.5 hours.

2.4 Analysis

The interview recordings were transcribed and corrected, before being coded in Nvivo (version 13) into urban and sound themes emerging from an inductive analysis. For ease of reading and brevity, we will only list the themes analyzed in this article (total numbers of mentions per category in parentheses, mentions may overlap): urban outcomes of *safety* (N = 41) and of *lack of safety* (N = 120), sound outcomes of *public space use and everyday activities* (N = 29) and of *psychological outcomes* (N = 91). We present numbers for transparency rather than statistical analysis.

3. Results

In this primary analysis, we found 39 unique mentions from 13 participants (out of 23) that related to both safety and sound; specifically, 23 mentions by nine women and 16 mentions by four men.

3.1 Safety

For the most part, safety questions were not consciously connected to sound considerations. On a total of 120 mentions to *lack of safety* from 21 participants, only 20 mentions from six participants could be connected to sound¹. For *safety*, the numbers

are 7/41 mentions for 5/14 participants. Conversely, 10/29 mentions (by 8/10 participants) were connected to safety questions for *public space use and everyday activities* and 5/91 (3/10 participants) for *psychological outcomes*.

3.2 Sound

When sound is mentioned in relation to safety, it is in two broad ways: sound as information about 1. the risks on the road, or 2. human presence in a space and time perceived as unsafe.

3.2.1 Road traffic risks

Most of the mentions (that is 39, from 13 participants) of sound and safety refer to the first, for a total of 31 mentions from all 13 participants. Participants mention trucking as a major source of noise and danger, but other types of conflicts were also mentioned, such as between cyclists and pedestrians (with cyclists riding on the sidewalk to avoid the unsafe road).

Examples include (our translation; all caps for experimenter question):

P8: “Ok look, you see the trucking that’s coming? If I fall here. That’s it. Yeah, with how fast everyone is going, with the big trucks, forget about it. [...] Yeah, noise is annoying too, it’s not pleasant.”²

P15, speaking as a cyclist: “The obstacles, the tranquility, the risk. [...] on the Souigny section, I use the sidewalk.”³

Other themes include the stress of walking along a noisy/busy street with fast-driving vehicles, and using back alleys to avoid the noisy and dangerous roads:

P4: “So being so close to cars or to a highway, that doesn’t bother me. It’s more the noise, the dust, the speed of cars, being able to cross safely.”⁴

P22: “No, in any case, I don’t find it safe at all. [...] Even if it’s longer, I’d rather use the small tranquil, calm back alleys than walk on Notre Dame.”⁵

¹ For example, we chose to consider “tranquil” as related to sound or not based on the context identified from the free-format verbalizations.

² P8: « Fait que regarde, tu vois le camion qui s'en vient là ? Si je tombe là. C'est fait. Ouais, la vitesse que tout le monde l'a, il y a du gros camion, oublie ça. [...] Ouais, moi le bruit, ça m'énerve aussi, c'est pas agréable. »

³ P15: « Les obstacles, la tranquillité, le risque. [...] la section sur Souigny, je suis sur le trottoir. »

⁴ P4: « Donc le fait d'être comme si près des voitures ou comme d'une autoroute ça me gêne pas. C'est plus le bruit, les poussières, pis la vitesse des voitures, le fait d'être capable de traverser sécuritairement. »

⁵ P22: « Non, moi en tout cas je trouve ça pas sécuritaire du tout du tout. [...] Même si c'est plus long, mais je préférerais

Here we can see that participants do not explicitly link noise to danger but rather mention them as co-occurring.

3.2.2 Human presence in unsafe spaces

For the second point, nine mentions from two participants discuss a social meaning of sound and safety, of a space being full of life, knowing someone is around in a dark public space in the evening in case something happens.

Examples include (our translation):

P6: *"No, I feel safe, but I know that some people, actually often women or older people with whom we work, the slightest lack of light, when there's no activity and no life, I know that for them, they won't feel safe to pass by here in the evening."*⁶

P22: *"I wouldn't pass by here at night. FOR WHAT REASON? IS IT BECAUSE IT'S TOO CALM? Exactly. Exactly, and well, after 10 pm at night..."*⁷

Here we can see that sound may not be explicitly mentioned as reassuring in and of itself, but that some elements that influence their sense of safety intrinsically are related to sound (life, activity, calm).

3.3 Gender

More women than men talked about safety overall, but they did not mention safety more in total than men when talking about road traffic risks (15 mentions from 9 women, 16 mentions from 4 men). The types of concerns and strategies, as presented in section 3.2.1, were also similar: both men and women mentioned trucks passing close, the stress of a noisy street with fast cars, and using back alleys.

But the two participants who mentioned human presence in unsafe spaces in section 3.2.2 were both women. P6 even clarified that she knew that vulnerable people, including other women, would feel unsafe. This participant worked in a social field and clarified that she had experience with vulnerable communities, mainly elder people and women, who expressed feeling unsafe in deserted public spaces after dark.

4. Discussion

Through commented walks with residents and workers from a neighbourhood where sound and safety are major concerns, we explored how gender, sound, and safety are connected. We found that participants do not

link sound to safety explicitly, but rather indirectly or as co-occurrences. This could explain why previous works investigating the link between perceived safety and soundscapes could not find sound differences between genders [12], [13]. This also demonstrates the need for more qualitative accounts of experiences on site complementing quantitative evaluations using scales and controlled laboratory experiments.

When sound is mentioned in connection to safety, it is often in two ways. First, all participants talk about risks on the road in similar proportions and in similar ways. The main themes revolve around the immediate danger to life that is a truck passing very close very fast, the general level of stress from all the nuisances that a fast and busy road represents (e.g., noise, dust, speed), and the coping strategies deployed by pedestrians and cyclists to protect themselves from both noise and risk (e.g., using back alleys).

Second, only some women and no men thought about the presence (or absence) of life in a space and time perceived as unsafe. The idea here is that knowing people are around in a dark public space in the evening would make women and other vulnerable people feel safer, feel that other people may see and intervene if something happens. This may be related to the way women scan their environments more than men, who focus more on the path [17]: sound provides information from all direction of space, which can supplement their directional visual attention.

Both of our results are in line with previous research highlighting how mechanically-dominated street soundscapes seem less inviting and less safe than soundscapes shaped by human activity [18]. Henty and Peimani [18] also found that perceived safety drops after dark, even for a street evaluated as very safe during the day, because human sounds, marking human presence and social safety, disappear. Here, we see the need for more inclusive soundscape research and design, considering a wider range of public spaces and times, city users, and overall experiences.

Specifically, human voices were the sounds that were evaluated by women as most improving safety [18]. Thus, quiet should not always be the goal in urban public spaces. While transportation noise is the biggest issue of noise pollution in urban settings, a silent public space is associated with the absence of people. And the absence of other people means no witness or intervenor in case of danger in the present work, or an anxiety-

prendre les petites ruelles tranquilles, calmes, que de marcher sur Notre-Dame. »

⁶ P6: « Non, moi je me sens en sécurité, mais je sais que pour certaines personnes, justement, souvent les femmes ou les personnes âgées avec qui on travaille, le moins qu'il manque un peu d'éclairage, qu'il avait pas d'activité et de vie,

eux, je sais que pour eux, ils se sentiront pas en sécurité de passer ici le soir-là. »

⁷ P22: « Je passerais pas ici pendant la nuit. POUR QUELLE RAISON ? C'EST PARCE QUE JUSTEMENT C'EST TROP CALME ? C'est ça. C'est ça, puis au-delà de 10h du soir et plus... »

inducing anomaly in the case of an epidemic lockdown [19].

Overall, our results indicate that people may not explicitly link sound with safety but it remains an undercurrent of it, both negatively and positively, including when it comes to how different genders experience social safety.

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References

- [1] *Acoustics — Soundscape — Part 1: Definition and conceptual framework (ISO 12913-1:2014)*, Geneva, Switzerland., Sep. 2014. Accessed: Nov. 06, 2016. [Online]. Available: http://www.iso.org/iso/catalogue_detail.htm?cnumber=52161
- [2] K. Chatburn, K. van den Bosch, and A. Talebzadeh, “A critical perspective on inclusion and diversity in soundscape studies,” *JASA Express Lett.*, vol. 6, no. 3, Mar. 2026, doi: 10.1121/10.0042697.
- [3] C. Tarlao, P. Aumond, C. Lavandier, and C. Guastavino, “Converging towards a French translation of soundscape attributes: Insights from Quebec and France,” *Appl. Acoust.*, vol. 211, p. 109572, Aug. 2023, doi: 10.1016/j.apacoust.2023.109572.
- [4] V. Fraisse, C. Tarlao, and C. Guastavino, “Lost in translation: soundscapes across languages and method(ologie)s,” in *Soundscape Across Languages: Theories and Applications of Survey Translations*, submitted.
- [5] L. Molinero, “SOUNDSCAPE APPROACH: SURVEY OF SOUND ENVIRONMENT IN A PUBLIC SQUARE IN LONDON AND ANALYSIS OF THE RELATIONSHIPS WITH URBAN CONTEXT AND PERCEIVED SAFETY,” laurea, Politecnico di Torino, 2018. Accessed: Apr. 02, 2026. [Online]. Available: <https://webthesis.biblio.polito.it/9605/>
- [6] F. Aletta *et al.*, “Exploring associations between soundscape assessment, perceived safety and well-being: a pilot field study in Granary Square, London,” in *Proceedings of the 23rd International Congress on Acoustics*, Aachen, Germany, 2019, pp. 7962–7969.
- [7] R. Siragusa, A. P. Bresci, A. Astolfi, A. Pellegrino, L. Shtrepi, and F. Pellerey, “Walk Safe Project: Perceived Urban Safety related to Soundscape, Lightscape and Urban Decay,” in *Forum Acusticum*, Lyon, France, Dec. 2020, pp. 1713–1717. doi: 10.48465/fa.2020.0812.
- [8] C. B. Gardner, *Passing By: Gender and Public Harassment*. Berkeley and Los Angeles, California, USA: University of California Press, 1995. Accessed: Dec. 15, 2025. [Online]. Available: <https://www.ucpress.edu/books/passing-by/paper>
- [9] UN-Habitat, “Global Public Space Toolkit: From Global Principles to Local Policies and Practice,” HS/034/15E, 2016. Accessed: Apr. 01, 2026. [Online]. Available: <https://unhabitat.org/global-public-space-toolkit-from-global-principles-to-local-policies-and-practice>
- [10] T. P. Uteng and T. Cresswell, Eds., *Gendered mobilities*. in Transport and society. Aldershot: Ashgate, 2008. Accessed: Dec. 15, 2025. [Online]. Available: <https://www.taylorfrancis.com/books/edit/10.4324/9781315584201/gendered-mobilities-tanu-priya-uteng-tim-cresswell>
- [11] C. Tarlao, J. Steffens, and C. Guastavino, “Investigating contextual influences on urban soundscape evaluations with structural equation modeling,” *Build. Environ.*, vol. 188, p. 107490, Jan. 2021, doi: 10.1016/j.buildenv.2020.107490.
- [12] P. Luo, Y. Miao, and J. Zhao, “Effects of auditory-visual combinations on students’ perceived safety of urban green spaces during the evening,” *Urban For. Urban Green.*, vol. 58, p. 126904, Mar. 2021, doi: 10.1016/j.ufug.2020.126904.
- [13] W. Zhang, Q. Meng, M. Li, and N. Li, “Interactive soundscape design in enhancing perceived safety in urban spaces at night,” in *INTER-NOISE and NOISE-CON Congress and Conference Proceedings*, Institute of Noise Control Engineering, Nov. 2023, pp. 2746–2755. doi: 10.3397/IN_2023_0400.



- [14] R. Gui and R. Ikeshiro, “Hearing Gender: Rethinking Gender, Sound and Public Space Through a Female Soundwalk Project and a Sound Installation in Hong Kong,” in *The Kyoto Conference on Arts, Media & Culture 2024: Official Conference Proceedings*, Dec. 2024, pp. 791–800. doi: <https://doi.org/10.22492/issn.2436-0503.2024.68>.
- [15] J.-P. Thibaud, “Commented City Walks,” *Wi J. Mob. Media*, vol. vol.7, no. n°1, p. pp.1-32, 2013, doi: <https://doi.org/10.65968/WXPT2861>.
- [16] E. Bild, V. Fraisse, and C. Guastavino, “MITACS project: Integrating sound considerations into the Montreal nightlife policy. Terrain 2: Assumption Sud-Longue-Pointe,” May 2023.
- [17] R. A. Chaney, A. Baer, and L. I. Tovar, “Gender-Based Heat Map Images of Campus Walking Settings: A Reflection of Lived Experience,” *Violence Gend.*, vol. 11, no. 1, pp. 35–42, Mar. 2024, doi: 10.1089/vio.2023.0027.
- [18] B. Henty and N. Peimani, “Exploring women’s perception of safety through sensorial experiences,” *J. Urban. Int. Res. Placemaking Urban Sustain.*, vol. 0, no. 0, pp. 1–22, Dec. 2025, doi: 10.1080/17549175.2025.2602484.
- [19] C. Trudeau, C. Tarlao, and C. Guastavino, “Montreal soundscapes during the COVID-19 pandemic: A spatial analysis of noise complaints and residents’ surveys,” *Noise Mapp.*, vol. 10, no. 1, p. 20220169, Jan. 2023, doi: 10.1515/noise-2022-0169.