



Ambient Noise Disruption in New York City

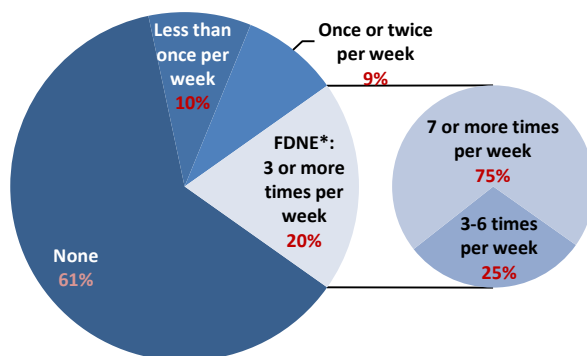
Ambient noise is sound from an environmental source, such as traffic, construction, industrial or recreation activities, animals, or people's voices, that is unwanted to the person who hears it.¹ Exposure to any noise has long been recognized as an important occupational health hazard in workplaces² and is increasingly viewed as a prevalent urban environmental hazard associated with adverse psychosocial and physiologic health effects³ such as sleep disturbance,^{4,5} higher blood pressure, cardiovascular disease,⁶ and impaired cognitive performance in children.^{7,8}

Like most cities in the United States, New York City (NYC) does not systematically monitor ambient noise or the prevalence of noise disturbance. However, the city tracks noise complaints through the NYC 311 call system and enforces the New York City Noise Code.⁹ 311 complaint data do not allow a full understanding of the burden of ambient noise because they may not capture information about all noise exposure; some New Yorkers are more likely to call about noise and some types of noise are most likely to generate a complaint. Thus, to gain a better understanding of noise disturbance among all New Yorkers, the Community Health Survey asked adults about how often they were disrupted by noise within the previous three months and about sources of disruptive noise.

About four in ten New Yorkers reported some disruptive noise exposure at home in the past three months

- Four in ten (39%) New Yorkers reported having activities disrupted by noise from outside their homes at least once in the previous three months. Of these, half reported frequent disruptive noise exposure (FDNE) of three or more times weekly.
- Almost three quarters of New Yorkers with FDNE—about 828,000 New Yorkers—reported noise disruption seven or more times per week.

Frequency of self-reported weekly noise disruption within the past three months among New York City adults, 2009



*Frequent Disruptive Noise Exposure (FDNE) is defined as a person experiencing noise disruption three or more times per week

Source: Community Health Survey, 2009

Definitions:

Disruptive Noise Exposure: This report defines disruptive noise exposure as any ambient noise from outside the home that disrupts activities - such as watching television, listening to the radio, having a conversation, or sleeping - to the person who hears it.

Frequent Disruptive Noise Exposure

(FDNE) is defined as experiencing noise disruption three or more times per week.

Data sources:

Community Health Survey (CHS) 2009 is a survey of approximately 9,000 adults aged 18 and older, conducted annually by the Health Department. Estimates presented here are age-adjusted to the US 2000 Standard Population, except for age-specific estimates. The CHS 2009 has included adults with landline phones and, starting in 2009, also has included adults who can be reached only by cell phone. For survey details, visit www.nyc.gov/health/survey.

311 Noise complaints, 2009: Data on all complaints to 311, the City's non-emergency services line, from 2009 are presented here. Noise complaints are reported, recorded, and answered according to New York City Noise Code, which was created to reduce noise levels in 1967 and updated in 2007. In order to enforce its objective, the New York City Department of Environmental Protection (DEP) and the New York City Police Department (NYPD) share duties based on the type of noise complaint.

For more information, visit:

<http://www.nyc.gov/html/dep/html/noise/index.shtml>.

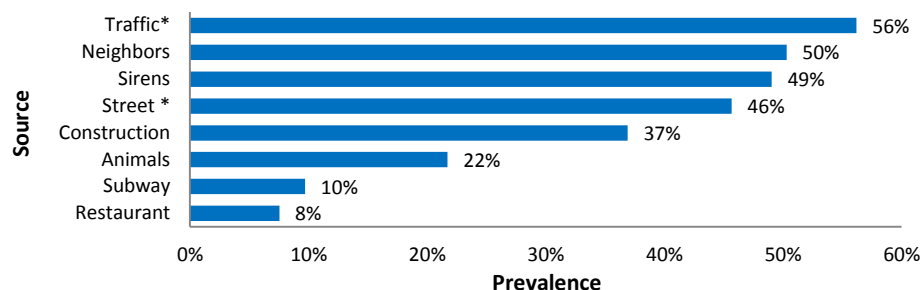
United States Census Bureau: Rates were calculated using NYC DOHMH population estimates, modified from US Census Bureau interpolated intercensal population estimates from 2009, updated July 22, 2013.

Traffic Density: A traffic metric created based on the MPSI TrafficMetrix (<http://www.pb.com/software/Data-Products/Street-and-Transportation-Data/MPSI-TrafficMetrix.shtml>) and the New York Best Practice Model by the New York Metropolitan Transportation (<http://www.nymtc.org/project/bpm/bpindex.html>).

Traffic, neighbors, and emergency sirens are the most common reported sources of disruptive noise

- More than half (56%) of all those reporting any noise disruption said they were disturbed by noise coming from traffic – noise from cars, trucks, or other vehicles, excluding emergency sirens – and about half said neighbors (50%) and emergency sirens (49%) caused their noise disruption.
- Common noise sources were similar among those experiencing FDNE and those reporting less noise disturbance.

Prevalence of sources of disruptive noise exposure among those who reported any disruptive noise exposure, New York City, 2009



*Traffic noise: Cars, trucks, or other vehicles, not including noise from emergency sirens;

Street: noise from activity of people on street (other than traffic, neighbors, construction, and restaurants).

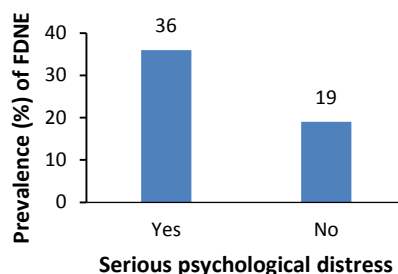
Categories of noise are not mutually exclusive

Source: Community Health Survey, 2009

About one in three New Yorkers with serious psychological distress and with poor self-rated health reported frequent noise disruption

- Noise can cause stress and other psychological problems, and noise also can be more disturbing to people experiencing other stressful life events, including physical or mental illness.
- More than one third of New Yorkers with serious psychological distress reported frequent noise disruption (36% vs. 19% among those without). Also New Yorkers who reported poor overall health were more likely to report frequent noise disruption than those reporting excellent health (31% vs. 15%).
- New Yorkers who were unable to work or unemployed and those in the poorest households (income less than 400% of the Federal Poverty Level) had among the highest rates of FDNE.
- New Yorkers living in large, multifamily buildings (more than 10 housing units) were more likely to report frequent noise disruption (24%) than those in smaller buildings of three to nine units (19%), one or two family units (14%), and those who did not know the size of their building (17%).
- There were no associations between being disrupted by noise and place of birth, race/ethnicity, or educational attainment among New Yorkers.

Prevalence of frequent disruptive noise exposure (FDNE)* by serious psychological distress, New York City, 2009



*Frequent disruptive noise exposure is three or more times per week.

Source: Community Health Survey, 2009

References:

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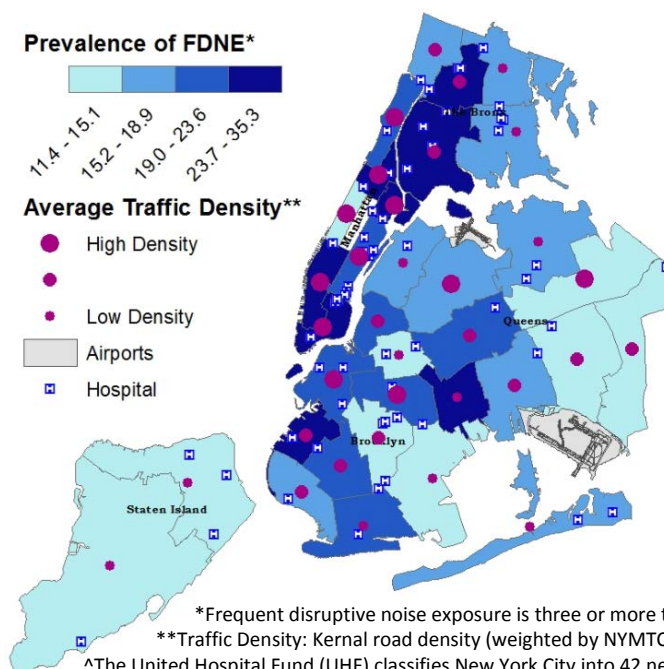
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Noise disruption varied by neighborhood

- The borough with the highest prevalence of any reported noise disruption was Manhattan (43%), very closely followed by Brooklyn (40%) and the Bronx (39%). Queens (34%) and Staten Island (28%) had significantly lower prevalence of noise exposure.
- Central Harlem-Morningside Heights residents reported the highest prevalence of both any noise disruption (49%*) and FDNE (35%*). Two-thirds (67%*) of those reporting any noise disruption in Central Harlem identified traffic (67%*) and sirens (68%*) as the most common noise sources.

*Estimate should be interpreted with caution due to small sample size.

Prevalence of frequent disruptive noise exposure (FDNE)* and average traffic density** by New York City neighborhood,^ 2009



*Frequent disruptive noise exposure is three or more times per week.

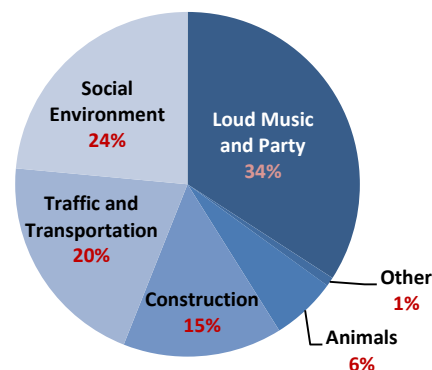
**Traffic Density: Kernel road density (weighted by NYMTC traffic counts).

^The United Hospital Fund (UHF) classifies New York City into 42 neighborhoods, comprised of contiguous zip codes, several of which were combined to create the 34 neighborhoods presented here. Sources: Community Health Survey, 2009; MPSI TrafficMetrix, 2013; New York Metropolitan Transportation Council (NYMTC), 2012.

Nearly one in 16 of all 311 calls in 2009 was related to noise

- Of the 1,783,133 complaints to the 311 call system in 2009, 111,730 (6%) were noise-related. More than half of 311 noise complaints were related to noise from loud music and parties (34%) or other social environment causes (24%) such as noise from neighbors, loud talking, loud TV, alarms going off, ice cream trucks, or noise from ventilation units. One-fifth (20%) of 311 noise calls were to complain about traffic or transportation noise.
- Although noise disruption prevalence as measured by the Community Health Survey (CHS) was similar in Manhattan, Brooklyn, and the Bronx, 311 complaint data show that residents of Manhattan disproportionally called about noise-related complaints in 2009. The Manhattan rate of noise-related 311 calls was 35 per 1,000 adults, more than twice that of Brooklyn and the Bronx (15 and 13 per 1,000 adults, respectively). This same pattern was seen by type of noise complaint.
- 311 data show similar geographic patterns to the CHS-reported prevalence of disruptive noise exposure among all New Yorkers. For instance, Central Harlem-Morningside Heights, Chelsea-Village, and Union Square-Lower Manhattan were among the top five communities with the highest 311 noise-related calls rates as well as the highest prevalence of noise disruption, as reported to CHS.

Frequency of 311 noise complaints, by noise category, New York City, 2009



Sources: 311 noise complaints, 2009; NYC DOHMH population estimates, modified from US Census Bureau interpolated intercensal population estimates, 2009. Updated July 22, 2013

MORE New York City Health Data and Publications

- For complete tables of data prepared for this Brief, visit nyc.gov/html/doh/downloads/pdf/epi/datatable45.pdf
- Visit EpiQuery – the Health Department’s online, interactive health data system at nyc.gov/health/EpiQuery

Data & Statistics at nyc.gov/health/data