Serving More than Food: Noise Exposures in Local Restaurants

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Background

Restaurants are used not only for eating and drinking, but socializing with friends, relaxing after class and conducting both social and business meetings.

Prolonged exposure at or above 85 decibels has the potential to result in permanent hearing loss.

OSHA has a maximum exposure limit of 90 dBA for an 8-hour period, NIOSH has a recommended exposure limit of 85 dBA for an 8-hour period.

A survey of 27 restaurants in the San Francisco Bay Area found that average noise restaurant levels ranged from 59 to 80 dBA, with a maximum of 87 dBA.

With noise levels approaching or exceeding 85 dBA, restaurant workers could potentially be at risk for occupational hearing loss and potentially struggle with their job requirements including taking customer orders and communicating with other staff.

Objectives

Investigate the sound levels in restaurants to understand risks in a variety of restaurant environments

1. Quantify sound levels in local area restaurant dining areas
2. Identify sound level differences during weekday and weekends in customer dining areas of local restaurants

Methods

Equipment:

- Quest Noise-Pro dosimeters
- Pre- and Post- Calibrated

Collection:

- 30 min integrated sound level measurements
- 13 Dining establishments
  - Early evening hours (5-9 pm)
- Two groups (10 samples each)
  - Restaurant with bar , Restaurant with no bar

Measurements:

- Time-Weighted Average
- Percent Dose
  - Recorded from dosimeter

Results

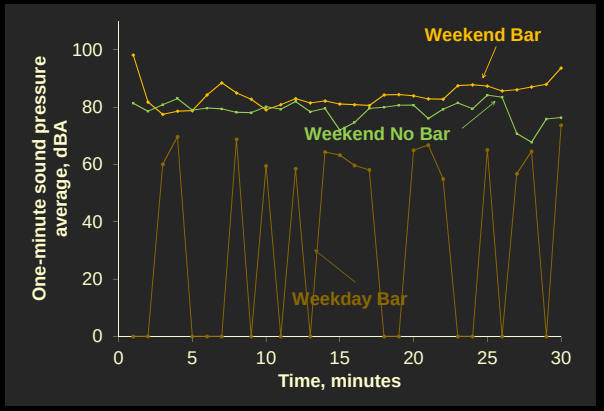
30-minute average sound levels ranged from 46 dBA to 76.7 dBA in customer dining areas

Repeated measurements at multiple establishments in the restaurant/bar and restaurant without bar categories identified mean weekday sound levels of 57.6 dBA (sd= 7.5 dBA) and 59.9 dBA (sd=9.5 dBA), respectively

Mean sound levels of 76.7 dBA (sd= 1.1 dBA) were identified for restaurant/bars and 58.5 dBA (sd=8.6 dBA) for restaurant without bar locations

Restaurant Type	Time of Week	Mean, dBA (SD)	Peak
Restaurant/Bar	Weekday	57.6 (7.5)	88
Restaurant/Bar	Weekend	76.7 (1.1)	98.2
Restaurant w/o Bar	Weekday	59.9 (9.5)	94
Restaurant w/o Bar	Weekend	58.5 (8.6)	84.2

One minute sound pressure average over a 30 minute interval for Weekdays and Weekends with Bar, and the Weekend with No Bar



A difference in time-averaged sound levels between each restaurant type during the weekend vs. weekdays is indicated

A larger difference (18 dBA) in sound level was identified by restaurant type during the weekend.

A small difference (2 dBA) in sound level was identified by restaurant type during the weekday.

Images of Sampling in Restaurant with No Bar & Restaurant with Bar

Time of week is statistically significant when comparing weekend to weekday (p=0.08)

Restaurant type is statistically significant when comparing restaurants with and without a bar (p=0.03)

The interaction of day of week and restaurant type is statistically significant (p=0.01)

Conclusions

Restaurant employees may be at risk for hazardous noise exposure

Even with short-term monitoring, customers were exposed to significantly more noise during weekend dining vs. weekday

Future Research

Conduct a more comprehensive evaluation of worker exposure within restaurants

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