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Understanding Why People Enjoy Loud Sound

David Welch

Learning Outcomes

- After this course, participants will be able to explain a theory of why people like loud sound.
- After this course, participants will be able to explain how to use the theory to develop more effective interventions aimed at reducing noise exposure.
- After this course, participants will be able to explain how to use the theory as a basis for developing new research hypotheses.
Plan for the talk

- Background
- Theory and research on why people like loud sound
- Research in nightclub workers

Loud sound is a health risk

- Noise-induced hearing loss

- Environmental noise
  - Annoyance
  - Sleep interference or Distraction
  - Cardiovascular and other health effects

- Perhaps parallels with other health-risk behaviour
  - Smoking
  - Driving too quickly
Mechanical damage to the organ of Corti

Sensory cells die and are not replaced
Excitotoxic damage to the auditory nerve?

Kujawa and Liberman, 2007

WHO Estimates of Noise-Induced Hearing Loss

- >360 million people have significant hearing loss
- Approximately one in six of these have NIHL
- 60 million people!
Prevention

- Noise-induced hearing loss cannot heal in mammals
  - Including humans

- Hearing aids/cochlear implants cannot properly replace natural hearing
  - Analogy: crutches

- Prevention is the only cure

But our society promotes loud noise as fun and exciting
Whereas messages about quiet tend to be negative and officious
Problem for Preventing Noise-Induced Hearing Loss

- Societal messages become internalised
- People perceive them to be the norm
- Difficult to convince people they are doing something wrong if it is normal
  - And ‘fun’
- So people ‘switch off’

Just because I don’t care doesn’t mean I don’t understand.

~ Homer Simpson
But how did this come to be?
We need to understand

Plan for the talk
- Background
- Theory and research on why people like loud sound
- Research in nightclub workers
Why do people like sound to be loud? Generally, people say:

“It’s fun”

We know that sound has a powerful emotional influence on us:

- The auditory pathway in the brain is complex and wide-reaching
- During evolution, sounds were highly meaningful to survival
- Perhaps originated as a warning system
Inferior Colliculus
Thalamus
Auditory Cortex
Superior Olivary Complex
Inferior Colliculus
Reticular Formation
Cochlear Nucleus
Cochlea
Thalamus
Amygdala
Hypothalamus
Wakefulness/Activation
“Fear” and other emotions
Autonomic Arousal

Research and Model

- Interviews:
  Regular club-goers
  Musicians/DJs
  Club managers

- Sound Measurement

- Model
  Processes
  Based on data and theory


CAALM Model

Conditioning, Adaptation and Acculturation to Loud Music

- Loud sound
  - Social cohesion
  - Opportunity for intimacy
  - Masking of unwanted sounds
  - Arousal and excitement
  - Masking of unwanted thoughts
  - Adoption of cool, tough identity
  - Arousal and excitement

Tolerance for loud sound

Personality

Auditory Adaptation

Desire for loud sound

Acculturation of loud music

Entertainment venues:
- Music
- Fun
- Friendship
- Sexual interactions
- Alcohol/Drugs
- Dancing

Discomfort

External
- Masking of unwanted sounds
- Social cohesion
- Opportunity for intimacy

Conditioning
Loud sound

Discomfort

Auditory Adaptation

Tolerance for loud sound

Sound levels measured in clubs across an evening

- Leq (dBA)
- Time

Loud sound

- Masking of unwanted sounds
- Social cohesion
- Opportunity for intimacy

Discomfort

Auditory Adaptation

Tolerance for loud sound

“...distracts you from other sounds going on around you.”

“It blocks out life and noise.”

Social cohesion

Opportunity for intimacy
“Loud music puts you in the mood to drink when you're with your mates.”

“Everyone wants to be part of an experience, especially when it’s music, and share it with each other. Loud music makes you feel as one.”

“Loud music in clubs past midnight gives them an excuse not to talk to people and instead be intimate.”

“. . . other people can't hear intimate conversations. So that you can have a lot of people in close proximity, but it is still private.”
“It’s just escapism. You lose yourself in the music. It makes you forget about other things, everyday problems and stuff.”

Auditory Adaptation

Tolerance for loud sound

Discomfort

Loud sound

External
• Masking of unwanted sounds
• Social cohesion
• Opportunity for intimacy

Internal
• Masking of unwanted thoughts
• Adoption of cool, tough identity
• Arousal and excitement

“My brother likes listening to loud music because he thinks he is cool.”

Auditory Adaptation

Tolerance for loud sound

Discomfort

Loud sound

External
• Masking of unwanted sounds
• Social cohesion
• Opportunity for intimacy

Internal
• Masking of unwanted thoughts
• Adoption of cool, tough identity
• Arousal and excitement
"My brother likes listening to loud music because he thinks he is cool."
Loud sound

**Auditory Adaptation**

- • Masking of unwanted sounds
- • Social cohesion
- • Opportunity for intimacy

**External**

**Internal**

- • Masking of unwanted thoughts
- • Adoption of cool, tough identity
- • Arousal and excitement

**Discomfort**

**Tolerance for loud sound**

“They make me feel happy and energized and I want to turn it up even louder.”

“The loud beat makes you want to move your body and be more active.”

“I think maybe they like it because it’s fun, and it’s associated with fun.”

“It translates into fun and happy memories. Every time you hear that sound again, it conjures up those feelings again ... it can change your mood wherever you are.”
Loud sound

- Social cohesion
- Opportunity for intimacy
- Masking of unwanted sounds
- Arousal and excitement
- Masking of unwanted thoughts
- Adoption of cool, tough identity
- Arousal and excitement

External

Internal

Tolerance for loud sound

Auditory Adaptation

Desire for loud sound

Personality

Discomfort

Auditory Adaptation

Tolerance for loud sound

Desire for loud sound

External

Internal

Acculturation of loud music

“"It needs to be loud at nightclubs, everyone expects it and it’s what they go for.”"
Loud sound • Social cohesion • Opportunity for intimacy • Masking of unwanted sounds • Arousal and excitement • Masking of unwanted thoughts • Adoption of cool, tough identity • Arousal and excitement

Auditory Adaptation

Desire for loud sound

Tolerance for loud sound

Discomfort

Personality

Sound-Level at ‘fun’ events

Physical Response

Enjoyment

Adaptation Conditioning Acculturation

Benefits Entertainment

Entertainment venues:
Music Fun
Friendship Sexual interactions Alcohol/Drugs Dancing
So what?

How can we use the model to allow us to intervene effectively?

- Perhaps understanding is enough?
- Perhaps intervene at key points in the cycles?
- We tried intervening with nightclub staff

Plan for the talk

- Background
- Theory and research on why people like loud sound
- Research in nightclub workers
Hearing-health intervention for nightclub staff

- Nightclub staff may be influential people for loud music norms
- If we could influence them to adopt healthier practices, others may change too
- Dangerous Decibels


Dangerous Decibels

- Aims to improve hearing health behaviour around loud sound
- End goal is to reduce NIHL and tinnitus
- Is interactive, fun and engaging for people being trained

Dangerous Decibels

- 45-minute programme
- Teaches about:
  - Sound
  - The ear and hearing
  - How the ear gets damaged
  - What hearing loss sounds like
  - How loud is too loud
  - Distancing from sound sources
  - Fitting earplugs
  - Looking after your friends

Dangerous Decibels Messages

- **Walk Away**
- **Turn It Down**
- **Protect Your Ears**
We adapted the children’s programme for adults

- Same basic components
- Same interactivity
- Same length
- Altered examples/demonstrations
But would it work for nightclub staff?


Research

- 20 people who work in nightclubs
- Trained using Dangerous Decibels
  - 45-minute interactive presentation
  - Delivered by the nightclub manager
  - Gave everyone earplugs
- Assessed with questionnaires:
  - Before training
  - A week after training
  - Three months later
Supports to barriers ratio

Supports
So the change in supports to barriers ratio was driven by increased supports.

Some barriers were removed, but others increased: especially "I am used to noise at work"
Attitudes

Self-Reported Behaviour
Partially Effective

- People learned

- Knowledge, Attitudes, and Supports to healthy behaviour increased

- But Barriers and self-reported Behaviour did not change
Summary

- People like listening to loud music
- The CAALM Model provides some understanding of why
- We can use that to try to intervene
- But CAALM is a powerful system and resistant to change

Thank-you for your attention!

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