Stress and Environmental Contamination: Tips and Tools from ATSDR

Fact sheet: https://go.usa.gov/xn8Mn

Ben Gerhardstein, MPH
Pam Tucker, MD
Jamie Rayman, MPH

Webinar
10/10/2018
Question for participants

How often do community members tell you they are stressed or worried about environmental contamination?

A. Often
B. Sometimes
C. Rarely
D. Never
Today’s take-aways

- Environmental contamination can cause stress
- Long term stress can harm people’s health
- Consider using ATSDR’s new stress fact sheet in conversation with community members
- Read the “Tips sheet” to prepare
- Environmental health professionals can use stress reduction techniques on the job
Overview of stress and environmental contamination
What is stress?

- Stress – a feeling of strain or pressure.

- Psychological Stress – emotional and physiological reactions experienced when someone judges a situation to be beyond their ability to cope.

- Psychosocial stressors – factors which can cause stress in social settings are: personality types, education, socioeconomic status among other things.
What is stress?
Physical aspects of stress

- Stress response is the body’s method of reacting to a threatening or overwhelming encounter.

- A stress response can make one go into a fight-flight-or freeze mode.

- Stress has a powerful impact on how your body’s systems function.
Psychological aspects of stress

- Change in behavior (e.g., increased impulsivity)
- Change in personality
- Change in ability to perform everyday tasks
- Loss of self-esteem
Social aspects of stress

Stress can be engendered by one’s:

- social status (perceived)
- economic status
- our cultural background
Stress modifiers

- It is thought that one’s gender plays a role in our biological, social, and psychological behavior towards stress.

- Stress is experienced in different ways in each individual.

- Some people can have an extreme stress reaction.

- Your overall health and your overall attitude will determine how you handle stress and how you cope with everyday “living” when a perceived stressful situation comes your way.
Directional nature of stress

Stress can be experienced in either a negative or positive direction.
Types of stress


- Chronic stress: Long-term stress conditions of varying degrees of intensity.

- Traumatic Stress: Levels of stress high enough to overwhelm most people.
Stress effects on performance

![Graph showing the relationship between arousal and performance. The graph has three points: low, medium, and high arousal, with performance peaking at medium arousal and declining at both low and high levels. The x-axis is labeled "Arousal" and the y-axis is labeled "Performance." The term "traumatic" is noted in parentheses next to the high arousal point.]
The nervous system controls our body’s response to stress.
Body’s reaction to stress is controlled by the sympathetic nervous system.
Body’s recovery from stress is controlled by the parasympathetic nervous system.
Allostatic load theory of stress

**Allostasis**: The process of maintaining stability (or homeostasis) through change (Sterling & Eyer, 1988).

**Allostatic load** is the “wear and tear on the body that grows over time when the individual is exposed to chronic stress. It represents the physiological consequences of chronic exposure to heightened neuroendocrine response that results from chronic stress” (McEwen, 1998).
The interpretation of stress

(Environmental stressors  
(work, home, neighborhood)

Major life events

Trauma, abuse

Behavioral responses  
(fight or flight)  
(personal behavior—diet, smoking, drinking, exercise)

Individual differences  
(genes, development, experience)

Physiologic responses

Adaptation

Allostasis

Allostatic load

(McEwen & Tucker, 2011)
Health effects from chronic stress

Include

- Contribution to risk of hypertension and coronary artery disease
- Flares of inflammatory autoimmune disorders
- Triggering of GI conditions such as irritable bowel disorder

(McEwen & Tucker, 2011)
Rationale for addressing psychosocial stress

- Perceived or known exposure to environmental contamination near hazardous waste sites may lead to chronically elevated stress in some members of these communities.

- These conclusions are based on a body of scientific studies on acute chemical spills and chronically exposed communities near hazardous waste sites as well as repeated concerns expressed by some impacted communities.
Common causes of chronic stress in communities: Psychosocial stressors from chemical exposure

- Uncertain risks to health from potential or documented exposures
- Invisibility of exposures
- Latency of health effects
- Community turmoil over the degree of threat posed by exposure
- Feelings of alienation from others
- Concerns over economic loss
- Feelings of loss of control over daily life
- Frustration over the lengthy clean-up process
Incomplete and highly technical information are stressors in disasters
Public uncertainties related to possible exposures

- Uncertainty about past exposures
- Unknown present exposures
- In case of chemical accidents, evacuation uncertainty
- Where does the boundary of the contamination exist?
- If exposed, how much of a dose
- How to deal with an exposure
- Financial uncertainty
Scientific uncertainty as a stressor

- The invisible nature of most hazardous substances lead to cognitive uncertainty.

- Both sensory invisibility and difficulty understanding technical data about possible exposures can make appraisal of the real degree of threat difficult for communities and renders adaptation to the threat prolonged and uncertain.

- Scientific uncertainty in health assessments can at times make a definitive answer about health risk difficult to communicate.
ATSDR’s “Coping with stress” fact sheet
Background: State and local stress and environmental contamination fact sheet examples
Fact sheet (page 1)

- Validates stress as normal
- Defines stress
- Explains why environmental contamination can cause stress
Participant question

Do these reasons resonate with your experience working with community members affected by environmental contamination?

A. Yes, you hit the nail on the head
B. Most of them
C. A few of them
D. Nope, these are totally off base
Participant question

Can you think of a community or site where environmental contamination has caused stress? If so, type it into the question pod.
Fact sheet (page 2)

- Suggests ways to cope
- Notes common signs of stress
- Lists resources for people overwhelmed by stress
Participant question

Are you prepared to point someone overwhelmed by stress to local health and helping resources (e.g., local health departments and mental health professionals) in the communities you’ve worked?

A. Yes, in most communities
B. Maybe, in certain communities
C. No, haven’t thought about it
Cómo enfrentar el estrés que puede causar la contaminación ambiental

La contaminación ambiental en su comunidad puede alterar la forma en que está acostumbrado a vivir. Sentir estrés es una reacción normal ante esta situación insual.

Esta hoja informativa analiza algunas de las razones por las cuales las personas se sienten estresadas por la contaminación ambiental, qué se puede hacer por la salud si se siente estresado y a quién contactar si necesita ayuda para enfrentar el estrés.

La contaminación ambiental puede causar estrés por varios motivos.

- Se puede sentir inseguro en su propia casa. Es posible que le preocupe que su casa y el vecindario sean inseguros.
- Se puede temer por la salud de los hijos. Si tiene muy poco o nada de control ante las posibles exposiciones perjudiciales, quizás sienta que no puede proteger a sus hijos de que sufran algún daño.
- Se puede tener incertidumbre con respecto a la salud actual y futura. Con frecuencia no es fácil determinar si los efectos que la exposición a contaminantes ambientales provoca en la salud. A veces las personas que están expuestas a contaminantes no muestran problemas de salud por varios años. A veces la exposición a un nivel que no causa daños es posible que sienta que no puede proteger su salud o darle a sus hijos la vida que ellos desearían.
- Quizás pierda la confianza en el gobierno, los líderes comunitarios, las organizaciones y las empresas. Puede perder la confianza en las personas y organizaciones que causaron el problema o que podrían haberlo prevenido. Tal vez lo preocupe, al mismo tiempo que no está recibiendo la información necesaria para proteger su salud.
- Puede tener preocupaciones económicas. Si es el dueño de una propiedad, es posible que teme que la contaminación ambiental reduzca su valor.

Hay formas de hacerle frente al estrés que la contaminación ambiental puede provocar.

Informese e informe a su familia

- Manténgase informado sobre la contaminación ambiental, consultando fuentes de información confiables.
- Hable con sus hijos. Ayúdelos a entender la situación, explicándoles en forma simple y objetiva con información adecuada a sus edades.
- Aprenda sobre los recursos existentes en su comunidad que lo puedan ayudar a hacerle frente al estrés.
- Aprenda cuáles son las medidas que puede tomar para evitar o reducir la exposición a sustancias químicas dañinas.

Conéctese con su comunidad y ayude a los demás

- Cuente su historia. Escuche las historias de los otros.
- Averigüe qué necesitan las personas y de que forma usted puede ayudar.
- Participe en las iniciativas de respuesta a la contaminación.
- Unas a un grupo comunitario o empaque uno.

Cuideese

- Siga con sus rutinas saludables de todos los días. Hágale un tiempo para comer bien, hacer ejercicio, divertirse y descansar.
- Controle el estrés.
- Conozca con su familia y amigos sus antecedentes médicos.
- Esté en contacto con un profesional de salud mental.

Busque ayuda si el estrés está afectando su vida diaria en forma negativa.

Los niveles altos de estrés pueden hacer que las actividades diarias resulten más difíciles, y el estrés continuo puede propiciar o empeorar los problemas de salud existentes, como las enfermedades cardíacas y la presión arterial alta. Busque ayuda si usted o alguno de sus seres queridos se siente así.

Hable con su médico.
- Un proveedor local de atención de salud mental: https://findtreatment.samhsa.gov/
- Líneas telefónicas de ayuda para sobrellevar la angustia ante desastres de la Administración de Servicios de Salud Mental y Abuso de Sustancias (SAMHSA): 1-800-985-5990 o envíe un mensaje de texto con la palabra TalkWithUs al 66746

Para obtener más información sobre la ATSDR, visite:
www.atsdr.cdc.gov
Tips, additional reading, and feedback form
Tips for using the fact sheet

Share the fact sheet with individuals or small groups of community members who express interest in the topic.
Tips: Do...

- Educate yourself on stress
- Use responsively
- Pair use with site-specific exposure information
- Explore its use with local leaders
- Learn about local helping resources
- Insert stress content in your own site-specific materials
Navajo-specific modifications

Coping with the stress that environmental contamination can cause

Environmental contamination in your community can disrupt life as usual. Feeling stress is a normal reaction to this unusual situation. This fact sheet discusses some reasons people feel stress about environmental contamination, what you can do to support your health if you feel stress, and who to contact if you need help dealing with stress.

Environmental contamination can cause stress for several reasons.

- **You may feel unsafe at home.** You may worry that your home and neighborhood are unsafe.
- **You may fear for your children's health.** If you have little or no control ever possible harmful exposures, you may feel you can’t protect your children from harm.
- **You may feel uncertain about your present and future health.** It is often not easy to spot or measure health effects from exposure to environmental contaminants. Sometimes people exposed to contaminants don't show health problems until years later. Sometimes exposure is at levels that will not cause harm. You may feel like you can’t protect your health or gain closure because of these uncertainties.
- **Your family and community may have conflict.** Family and community members may disagree about how serious the environmental contamination is and what to do about it.
- **You may feel frustrated by the long investigation.** Investigating environmental exposure and health risks, as well as cleaning up contaminated areas, can take years. Waiting can be stressful, especially if you are worried about your family’s health.
- **You may lose trust in government, community leaders, organizations, and businesses.** You may lose trust in people or organizations that caused the problem or could have prevented it. You may also worry that you are not getting the information you need to protect your health.
- **You may have financial concerns.** If you are a property owner, you may fear that environmental contamination will lower your property value.

Stress is your body’s natural reaction to any kind of threat that disrupts life as usual. While not all stress is bad, ongoing stress can lead to mental and physical health effects.

Seek help if stress is negatively affecting your daily life.

High levels of stress can make everyday activities seem harder, and ongoing stress can contribute to or worsen existing health problems such as heart disease and high blood pressure. If you or your loved ones feel overwhelmed, seek help.

Get in touch with:

- Your doctor
- A religious or spiritual leader
- A local mental health provider

Navajo Nation Department of Behavioral Health Services:
(928) 871-6877

Information about ATSDR see:
www.atsdr.cdc.gov

Agency for Toxic Substances and Disease Registry
Division of Community Health Investigations
Tips: Don’t…

- Compare stress and exposure-related health risks
- Use in large group presentations
- Diagnose mental health issues
- Focus on personal health behaviors (for coping)
- Talk about stress with a person who is angry
- Overpromise what you or ATSDR can do
Participant quiz

Which of the following are recommended uses of the ATSDR stress fact sheet? (Pick all that apply)

A. Integrate the content into a presentation for a large public meeting.
B. Display it at an open house table along with other materials.
C. Share and discuss it with someone who tells you he’s been stressed.
D. Share it with a person who is visibly angry or emotional.
Additional reading sheet to learn more about

- Stress
- Community-wide stress interventions
Help us improve these materials

If you use the fact sheet, fill out the feedback form
Where can I find these materials?
Materials available on the CLU-IN site

https://clu-in.org/conf/tio/NARPM Presents41/

NARPM Presents... Stress and Environmental Contamination: Tips and Tools from ATSDR

Sponsored by: EPA Office of Superfund Remediation and Technology Innovation

Live Webinar: Wednesday, October 10, 2018, 1:00 PM-3:00 PM EDT (17:00-19:00 GMT)

Register

Webinar Slides and References:

- These materials will be available by Wednesday, October 10, 2018

Additional Resources:

- These materials will be available by Wednesday, October 10, 2018
Find the fact & tips sheets on

ATSDR’s Fact Sheets Web Page

www.atsdr.cdc.gov/factsheets.html
Contact ATSDR staff for additional reading sheet, feedback form, and questions

- Ben Gerhardstein, fty9@cdc.gov
- Jamie Rayman, fpe7@cdc.gov
Stress from relocation fact sheet

Available at https://go.usa.gov/xPKFD

Spanish version also available, contact Pam Tucker, pgt0@cdc.gov
Coping with stress you may feel on the job
Coping after a community response

General Tips:

▪ Return to normal eating and sleeping;
▪ Within 24 to 48 hours after trip, exercise is important.
▪ Refrain from using alcohol for a few days during recovery from field duty:
  – Alcohol interferes with normal sleep patterns and
  – Alcohol can inhibit judgment and impair behavior.
Coping with stress you may feel on the job

- Stress Buffers for Physical Signs/Symptoms:
  - Relaxation
  - Meditation
  - Aerobic exercise (e.g., running, cycling, etc.)
  - Restorative Sleep

- Stress Buffers for Psychological/Behavioral Signs:
  - Social support (Formal or Informal)
  - Thought stopping or other cognitive techniques
Timelines for disaster responses

- Response Recommendations:
  - On a disaster site, team members should not have more than a 12-hour shift, and
  - Rotating team members is crucial.

- Team members need time away from a disaster site so:
  - Team members are strongly encouraged to not volunteer their time to a disaster response when off-shift.
Preventing occupational burnout

- Occupational burnout is characterized by the following three components:
  - emotional exhaustion,
  - feelings of depersonalization,
  - and reduced personal accomplishment (Maslach, 1993).

- Preventing and/or Managing Burnout
  - Comprehensive stress management program
  - Evaluation of options
  - Reassess your interests, skills, and passions
Acknowledgements

- Charlton Coles, ATSDR
- Delene Roberts, ATSDR
- Fact sheet implementation work group
  - Loretta Asbury, ATSDR
  - Crystal Frazier
  - Althea Grant, CDC
  - Jennifer Lyke, ATSDR
  - Julie Sifuentes, Oregon Health Authority
  - Tarah Somers, ATSDR
  - Pamela Tucker, ATSDR
- Pease Community Assistance Panel (New Hampshire)
- California Dept. of Public Health Stakeholder Roundtable Participants
- Substance Abuse and Mental Health Services Administration
- Ileana Arias, ATSDR
References


References, cont.


Questions & Discussion

Ben Gerhardstein, fty9@cdc.gov, 415.947.4316
Jamie Rayman, fpe7@cdc.gov, 415.947.4318
Pam Tucker, pgt0@cdc.gov, 770.488.3458

Disclaimer: The findings and conclusions in this presentation have not been formally disseminated by the Agency for Toxic Substances and Disease Registry and should not be construed to represent any agency determination or policy.