



Coping with Technological Disasters Appendix B:

Outreach Activity - Community Education Media Series

*Prepared by: Prince William Sound Regional Citizens' Advisory Council
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This appendix provides community education articles on technological disasters and their potential effects on communities. Appendix C is a companion to these articles using radio programs to provide additional community education information.

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Introduction

The sample articles provided in this appendix were developed for the original Growing Together program in 1995 and revised for the guidebook in 2004. We have included them here (2021 revision) because we continue to find the core content relevant.

This series of articles for the community can help raise awareness of what to expect on a social-emotional level after a technological disaster and teach how to mitigate the harmful effects.

These can be distributed online or in print. Many towns have websites or social media platforms that are regularly used for community news or commentary. Local newspapers normally provide space at little or no cost for such community education articles.

The sample vignettes provided build on each other by defining technological disasters, describing a well-known technological disaster's social impacts, examining social, mental, and physiological effects of stressors, and describing coping strategies.

The series is presented so that lay individuals will understand the terms and conditions presented in each article. Finding the right local engagement strategy or strategies is key. The following are suggestions for their use:

Digital Media

- Digital media includes social networking sites, websites, blogs, streaming services, and other online formats that can be used to distribute information.
- Because social media changes so rapidly, working with an expert contractor will be most effective for forming a current, effective social media strategy.
- Use local individuals or organizations, such as city hall, to identify which web platforms, pages, sites, or group will be most effective for broadest reach in each community. Be sure that any content is hosted and endorsed by local, respected entities. Look for groups within different platforms that were created specifically for that community.
- Release the articles as a series of blog posts.
- For a small fee articles and other content may be “boosted” on social media platforms to increase visibility.
- Utilize any hashtags that the local community is regularly using for related content.

Printed media

- Contact local newspaper editors and determine the availability of public service space. If space is not available, determine cost for running articles of approximately 600 words each in consecutive news issues. Submitting an opinion-editorial (op-ed) piece promoting resources available should also be considered.
- Once the series is run in the newspaper, place bound copies in public areas (library, doctor's offices, community meeting places, town hall, schools, community service organizations, etc.).
- In all cases the articles should include the organization to which questions may be addressed for further information.

- Your needs may require different types of educational materials in addition to the eight presented here. Local mental health professionals should be consulted for information and advice in preparing those specific needs articles.

Community Education Articles

These articles do not capture the full body of knowledge available today about the social-emotional challenges of technological disasters, individual mental health, and community wellness. More research should be done as needed. For example, you may want to seek out information related to trauma informed practices such as post-traumatic stress, resilience, mindfulness, or adverse childhood experiences.

In addition, the lines between technological and natural disasters is getting increasingly blurred. For example, after Hurricane Katrina there were several oil spills as a result of damage to facilities. Climate-related natural disasters have raised the general stress level in many communities and make it hard to know if there is a party at-fault for the impacts seen, such as drought, wildfire, changing species distribution, flooding, and rising sea level.

Articles:

- “Technological Disasters: Why Are They Different?”
- “Understanding Anger”
- “Letting Go of Chronic Depression”
- “Chronic Stress and Alcohol Consumption”
- “Talking to Children in Stressful Situations”
- “The Mood-Food Connection: Understanding Stress”
- “Chronic Stress and Cancer: Is There a Link?”
- “Coping With Technological Disasters”

This eight-part series on technological disasters, their community impacts, and strategies for recovery was developed by Sound Alternatives and the Family Resource Center (Cordova, Alaska), in cooperation with the University of South Alabama (Mobile). Funds for the development of this series were provided by the Prince William Sound Regional Citizens’ Advisory Council.

Consultants for this series were: K. Arata, Ph.D., C. Cain, B.A., M. Conrad, M.D., M. Edelstein, Ph.D., K. Erikson, Ph.D., B. Freudenburg, Ph.D., S. Kroll-Smith, Ph.D., S. Picou, Ph.D.

Technological Disasters: Why Are They Different?

Original 1999, updated 2004

A hurricane and an oil spill. Both are devastating, causing disruption, pain, and uncertainty in a community.

But they're not the same. One is an uncontrollable force of nature. The other is caused by humans. As a result, the way they affect people in the long run is drastically different.

The people living around Alaska's Prince William Sound know about man-made, or technological, disasters all too well. When the Exxon Valdez ran aground on March 24, 1989, the estimated 11 million gallons of oil that gushed into the Sound did more than eliminate the fishing season. It brought entire communities to the brink. Residents of this once-peaceful paradise are still trying to recover.

The irony of 20th century life is that the technology man uses to tame nature is just as likely to harm him. And when technology goes horribly awry, as in the case of the Exxon Valdez oil spill, experts say the consequences are even more devastating than natural disasters.

"A disaster is always traumatic but it's even worse when it's created by another human because it makes the whole world seem uncertain," said Dr. Kai Erikson, a Yale University professor who has studied these calamities for more than 20 years.

The bottom line is that natural disasters bring people together and man-made disasters tear them apart. After a natural disaster, people band together in displays of "heartwarming helpfulness," said Dr. Bill Freudenberg, a professor of rural sociology and environmental studies at the University of Wisconsin.

"You see people helping each other until their hands bleed, and they feel good about that," he said. "You don't see that after a technological disaster."

For example, after Hurricane Opal ripped through northwest Florida in October 1995, personnel from the American Red Cross and the Federal Emergency Management Agency (FEMA) rushed in to provide supplies, repairs, and moral support.

"The authorities and the media all lent a comforting re-establishment of normalcy after a terrifying event," Freudenberg said. "Eventually, life will be pretty much the same as it was before."

Not so after man-made disasters, which often require "experts" for cleanup or "techno-fixes."

"There's no FEMA equivalent for a technological disaster," Freudenberg said. "Exxon was all Prince William Sound communities had, and Exxon was the one that caused the problem. They were in charge of the cleanup. That's like putting Hurricane Opal in charge of cleaning up Florida. There's something funny about that."

Naturally, the goal of any company responsible for a technological disaster is to protect itself. "After a technological disaster, the people likely to come in are lawyers, and their goal is not to help you," Freudenberg said. "So where forces work together to restore normalcy after a natural disaster, they work to subvert normalcy after a technological disaster."

In the case of the Exxon Valdez spill, lawsuits against Exxon and the cleanup continued the disruption long after the day the oil tanker ran aground. This only intensified the mistrust and anxiety people already felt.

"Your rational self says the spill was a one in 10,000 chance," said Yale's Dr. Erikson. "But it did happen and you wonder when it will happen again. Fishermen know nature is fickle, but now the whole world seems more precarious."

Adding to people's distress is a sense that outsiders don't understand, especially if the environment doesn't look different. That was the case with the Three Mile Island nuclear accident, which released invisible radioactive gas.

"Natural disasters arouse human empathy, but we (outsiders) don't always believe technological disasters happen," said Dr. Mike Edelstein, professor of environmental psychology at Ramapo College of New York. "We think these people are somehow responsible for their own misfortune and we tell 'glow in the dark' jokes. That stigmatizes people."

Another difference is what technological and natural disasters destroy, and how rapidly. For example, when Mount St. Helens threatened Washington in 1980, the public had about two hours' notice and then the volcanic eruption itself was over quickly.

"In a technological disaster, the destruction goes on interminably," said Dr. Steve Kroll-Smith, a sociologist at the University of New Orleans.

That's because these accidents destroy things that can't be repaired, such as the air, water, and soil. In comparison, hurricanes and tornadoes destroy buildings and public utilities - things that can be rebuilt relatively easily.

"After a hurricane you rebuild your house and go on with life, but you can't rebuild air or water," he said. "Recovering from that is long, and indeed may not be possible."

In short, "it's more than 'Apocalypse Now,'" Kroll-Smith said. "It's 'Apocalypse From Now On.'"

But in Alaska's case, the hearty people have one factor in their favor: traditions of self-reliance and mutual helpfulness that will help them recover.

"It's a strong culture to build on," Freudenberg said, and "community education is a good way to start."

Remember...

Natural disasters are caused by uncontrollable forces in nature. Technological disasters are human caused.

Natural disasters bring people together to rebuild and help each other.

Technological disasters produce mistrust and anxiety in people unable to repair the air, soil, or water affected by such disasters.

Natural disasters allow people to rebuild and return to their predisaster lives.

Technological disasters do not allow people to return to predisaster conditions, instead communities must form new patterns for their lives.

Understanding Anger

Original 1999, updated 2004

In 1994, a jury in Anchorage ordered Exxon to pay \$5 billion in damages for the 1989 oil spill in Alaska's Prince William Sound. At the time, it was the largest punitive damage award in American history. But it wasn't a fatal blow to the oil company.¹

"The lawsuits are finished and there may be others, but tankers are still steaming through the Sound," said Dr. Mike Edelstein, an environmental psychologist at Ramapo College of New Jersey. "It's almost like these companies get off easy."

No wonder victims of man-made calamities - whose lives have been disrupted indefinitely - remain angry for a long time.

"Part of the reason people are still mad is the way technological disasters are handled," said Dr. Kati Arata, a clinical psychologist at the University of South Alabama. "A company doesn't say, 'Gee, we screwed up. How can we help?' You have to sue for compensation and the law suits drag out the pain."

In addition, a man-made disaster forever forces people to look at the world in a different way.

"They're continually reminded of the problem," Edelstein said. "It's like looking out your window every day and seeing a landfill in your backyard. You're always reminded."

Psychologists and sociologists emphasize that anger is a normal and healthy reaction that helps ease the pain and stress of a trauma.

"People come out of these situations feeling weaker and smaller than before," said Dr. Kai Erikson, a Yale University sociologist who has studied man-made disasters for more than 20 years. "The angry ones at least are working on some sort of energy."

"Through greed, carelessness, or incompetence, someone has harmed you," Edelstein agreed. "The disaster in no way needed to happen. Someone could have stopped it."

But no matter how justified the anger is, allowing it to become all-consuming is unhealthy. How victims deal with this seething emotion will be key to their long-term recovery.

"If it's keeping you from moving on, what good is it doing you?" Dr. Arata asked.

Experts say it's important not only to understand why you're angry, but also to manage it. Otherwise, it only causes more pain and perpetuates the "corrosive community" that tears people apart after man-made disasters.

For example, the stress and anger may provoke families to snap, scream, and swear at each other. They end up treating loved ones worse than they would treat total strangers.

"They deflect the anger, like 'I'm mad at my wife so I kick the dog,'" explained Dr. Steve Kroll-Smith, a sociologist at the University of New Orleans. "Don't forget who you're mad at and don't take it out on the wrong people."

¹ In 2008, the Supreme Court approved a \$500 million settlement — much lower than the \$5 billion a jury originally awarded.

How can you deal with anger? Experts offer this advice.

1. Know that your feelings are valid. "Being angry at the company that caused the disaster is exactly how you ought to feel," Erikson said.
2. Acknowledge you have no control over the people or companies that caused the accident. "The one thing you do have control over is your emotions," Kroll-Smith said. "You can control how you react and express your anger."
3. Understand that anger harms only you. "It increases your blood pressure and wastes time and energy you could devote to your family and to enjoying life," Dr. Arata said.
4. Instead of brooding, talk about your feelings, especially with people who share your situation. Trying to swallow your anger will make you feel isolated and depressed. "Find others who share your circumstances," Edelstein said. "Outsiders don't understand, but insiders understand very well and you need them." However, be careful when you discuss your anger. Insulting and demeaning others only hurts relationships. "Words hurt and words can't be taken back," Kroll-Smith said. "Never forget that."
5. Get physically active. Burn off energy by doing something productive. Mow the grass. Run. Wash windows. Hit a punching bag - anything but "sitting there and just being mad," Erikson said.
6. Concentrate on solutions, not blame. Take positive action to ensure such disasters don't happen again. For example, forming local grass roots organizations can be "very therapeutic," Edelstein said. "You won't just be feeling helpless and incompetent. That sense of empowerment is important." Dr. Arata compared the benefits to the good feelings rape victims get when they help other victims. "It helps them give meaning to what happened," she said.
7. And finally, Erikson said, "remember you are not alone. Others in the community share your pain, seek them out and help if you can."

Remember...

Anger is a normal response and healthy reaction that helps ease the pain and stress of a trauma.

Allowing anger to be all consuming is unhealthy.

Prolonged anger does nothing for an individual's long-term recovery.

Deal with anger by directing it only at those responsible, understand that only you have control over your emotions, understand that anger harms only you, talk about your feelings, get physically active, redirect your anger and concentrate on solutions, not blame.

Let go of your anger by acknowledging you have no control over those who caused the disaster.

Others are sharing the pain and emotions of the disaster- seek them out and together you may find strength that you can't find alone.

Letting Go of Chronic Depression

Original 1999, updated 2004

Sadness. Insomnia. Guilt. Low self-esteem. Listlessness.

These are symptoms of depression, a common reaction in people who have lived through the loss and uncertainty of a technological disaster.

Sociologists and psychologists say depression is understandable but letting go of it is essential to recovering from the calamity.

The good news is that depression is one of the most curable emotional problems: More than 80% of cases can be successfully treated, according to the National Alliance for the Mentally Ill.

"You are not alone," said Dr. Steve Kroll-Smith, a sociologist at the University of New Orleans. "What you feel is valid - in fact, validated by the thousands of people who have been through these disasters."

What are the signs of depression?

Symptoms include persistent sadness, loss of interest in usual activities, poor appetite or weight loss, sleeplessness or too much sleep, fatigue, feelings of worthlessness or excessive guilt, difficulty concentrating, and thoughts about suicide or death.

Depression can be triggered by stress, grief, helplessness, frustration, and isolation - all of which describe how people feel after a technological disaster devastates their community.

"Often depression starts out as anger," said Dr. Jay Mulkerne, a clinical psychologist in Mobile, Ala.

"Victims of a technological disaster feel angry it happened and hopeless the situation will get better. Anger is not welcomed in our culture, so they bottle it up and turn it inward. Over time, it turns into depression."

Men are especially vulnerable to depression after a man-made disaster, according to Dr. Kati Arata, a clinical psychologist at the University of South Alabama.

"If you're the caretaker for the family and something prevents you from fulfilling that role, then you will get angry and depressed," she said.

Even worse, many men are taught to hide their feelings, which only deepens their depression. A survey of fishermen affected by the 1989 Exxon Valdez oil spill showed that 37% still reported depression six years after the accident.

"That's the problem with technological disasters," Dr. Arata said. "They just keep going. The fish and wildlife may be coming back, but years of bad fishing still affects their thinking."

So how can the depression cycle be broken?

Severe cases require professional help, involving therapy or medication. But you can start helping yourself.

Experts say the first step is to understand why you're upset and to change the way you think if there's nothing you can do about it.

"People think, 'It's not fair the Exxon Valdez ran aground and the oil killed our fish,'" Mulkerne

said. "Of course, it's not fair, but fair has nothing to do with it. Life isn't fair. Everyone agrees it shouldn't have happened, but that doesn't help us deal with it. Life throws us curve balls and we have to learn to hit them."

Instead, accept that the disaster happened and focus on what you can do for yourself and others now.

"If you wait around for the bad guys to be punished, it postpones getting one with life," Mulkerne said. "Lawsuits can drag on for years and they don't solve everything."

Focusing on something besides the disaster and the woe it's caused is one of the most beneficial things you can do.

"You're not a victim if you're being a helper," said Dr. Bill Freudenberg, a professor of rural sociology and environmental studies at the University of Wisconsin. "As mad or depressed as you are, take three of four small steps to help somebody else. Shovel their snow. Cut firewood. Buy someone a cup of coffee and talk."

By helping others, "you step out of the role of victim," Freudenberg said.

"The 20 minutes you spend on someone else is at least 19 minutes you're not thinking 'Poor me,'" he explained. "It's like a barking, frenzied puppy. You can tell the dog to stop barking, but it's better to distract the puppy by saying 'Sit!'"

Another positive benefit is that by getting involved with others, victims of man-made disasters realize they are not alone. In fact, getting together and talking may be one of the simplest and best things they can do for themselves.

"There's a lot of evidence in self-help groups that people who get together regularly and talk about their problems have a better time getting over them," Kroll-Smith said.

Victims also can combat depression with a series of small, personal steps. For example, keep a journal where you can vent your emotions. Avoid alcohol (a depressant) and caffeine (which can disrupt sleep). Establish a regular routine of sleeping, eating, and exercising.

"Exercise is a great stress management technique," Dr. Arata said. "It releases endorphins, which are 'feel-good' chemicals."

Dr. Arata also recommended developing new hobbies, especially ones that involve family and friends, such as card parties or supper clubs.

"Isolation only increases depression," she explained. "Alaskan fishermen are naturally private people but fishing brought them together. When that was gone, so was their social contact."

And finally, "monitor negative thinking," Dr. Arata said. "Focus on solutions, not problems. You can make yourself feel better."

Remember...

People impacted by technological disasters become angry and that anger sometimes turns to depression.

Signs of depression are persistent sadness, loss of interest in usual activities, poor appetite, weight loss, sleeplessness or excessive sleep, fatigue, low self-esteem, guilt, difficulty concentrating, and thoughts of suicide or death.

To release depression, start by accepting that a disaster has occurred and concentrate on helping yourself and others.

Don't dwell on retribution, become a helper for others, even if it's only to listen.

Chronic Stress and Alcohol Consumption

Original 1999, updated 2004

Since the 1989 Exxon Valdez oil spill in Alaska's Prince William Sound, people have felt tense, frustrated, sad, and angry.

Many in the affected communities may have started drinking more. What they do not realize is that their emotions and habits are closely linked, and both are by-products of the technological disaster that negatively impacted their lives.

"There is a connection between stress and consumption of alcohol and food," said Dr. Kai Erikson, a Yale University sociologist who has studied many man-made disasters. "But people may not make the connection of why they're doing it. Understanding is the first step to taking care of it."

Vulnerable people are easy prey for drinking problems. And perhaps nobody feels more vulnerable than the victims of man-made calamities, whose lives get thrown into chaos indefinitely.

"We all have questions like 'Where did we come from? What's the meaning of life?'" said Dr. Bill Freudenburg, a sociologist from the University of Wisconsin.

"We try to make sense of the world around us. It's how we figured out how not to get eaten by the saber-toothed tiger. But some things don't make sense."

And something that doesn't make sense – like a technological disaster that could have been prevented – makes people anxious.

"Stress is real, and we all have ways of dealing with it, including some that aren't necessarily good for us," Freudenburg said.

Besides the obvious health risks, the trouble with drinking too much is that it neither changes nor helps the root problem.

"When you start an obsessive behavior that wasn't there before, then it's a way for you not to acknowledge the pain and anger," said Dr. Steve Kroll-Smith, a sociologist at the University of New Orleans. "You're not confronting what happened and that can get you in a lot of trouble."

Alcohol is particularly seductive because it's a "shortcut to sedation – a form of self-medication," said Dr. Jay Mulkerne, a clinical psychologist in Mobile, Ala. "It becomes a habit; you associate stress with a desire to drink."

It doesn't help that liquor is legal, always available, and aggressively advertised.

"The whole marketing concept makes it look like life is great if you drink," Mulkerne said. "If you drink this, you'll feel more attractive. You'll have a great time.' The ads never show the down side – the drunk driving accidents and the lonely people with a bottle in their hands."

Studies show that, in particular, being male, single, unemployed, and/or angry is correlated with abusive drinking patterns.

"Research indicates that many commercial fishers in Prince William Sound have experienced high stress levels over the last six years," said Dr. Steve Picou, a University of South Alabama sociologist, who has studied the community impacts of the Exxon Valdez oil spill.

That means stressed-out, outraged Alaskan fishermen have been at risk since the oil spill disrupted the fishing and undermined their jobs.

The cycle appears more vicious when this factor is tossed into the mix: Researchers have found that men without partners drink the most.

That means the more stress a person is under, the more vulnerable they are to alcohol. The more they drink, the more likely their relationships are to crumble – and then they’re more likely to keep drinking.

So how can this cycle be broken?

First, stop denying or rationalizing your drinking. “Often, a DUI arrest is the first time people realize they have a problem,” Mulkerne said.

Second, “learn your cues,” Mulkerne said. Note the times or emotions that make you want a drink. For example, many people crave alcohol at social events, while others want it when they feel tense, angry, frustrated, or sad.

“They want distraction,” Mulkerne said. “When they don’t want to think about something, they drink. It’s a form of escape. If you don’t like your life, you may alter your reality with alcohol instead of making real changes.”

And third, don’t be afraid to seek professional help.

“Drinkers can find support and strength in people who share their troubles,” Mulkerne concluded.

Remember...

Stress and alcohol become a vicious cycle when the desire to drink is associated with stress.

The use of alcohol clouds an individual’s ability to seek solutions to stressful situations.

Men without partners are more likely to consume alcohol under stress.

Establishing a new routine – proper sleeping, eating, and exercising will help reduce depression.

When people stop associating with each other, the isolation increased depression.

Talk to others, and work together on solutions, not problems.

Talking to Children in Stressful Situations

Original 1999, updated 2004

If adults are fearful and anxious after a technological disaster, just imagine how kids feel.

They already know the world can be scary, but it seems all the more precarious after a technological accident that may have contaminated the water they drink and the air they breathe.

"These are adult events that kids aren't ready to deal with," said Dr. Mike Edelstein, a professor of environmental psychology at Ramapo College of New Jersey. "Adults aren't, either. So how can you ask a child to deal with something you're not prepared for yourself?"

When talking to children, parents wonder if they should be brutally honest and risk magnifying their fears, or if they should say everything is fine, knowing that it's not.

"There's a fine line between honesty and scaring a child," said Dr. Steve Kroll-Smith, a sociologist at the University of New Orleans.

Honesty usually is the best policy because children will hear about the disaster at school, friends' homes, and on television.

"There's nothing worse than telling kids everything's fine when you know it's not," said Dr. Kai Erikson, a Yale University sociologist who has studied technological disasters for more than 20 years.

"Kids will think you're lying to them, or they'll think you're right and there's no explanation for how they're feeling. They'll think, 'There must be something wrong with me.'"

However, parents must choose their words carefully when discussing the situation. They should use simple language and avoid exaggeration, no matter how anxious they feel.

"The more blunt you are about the malevolent forces unleashed into the environment, the more you play into children's fears," Edelstein said. "That makes it more difficult for them to feel secure."

Children's fears are amplified when the fall-out hits the emotional home-front. For example, the stress may cause their parents to argue and if the disaster affects the family's livelihood (as was the case with Alaska fishing communities after the 1989 Exxon Valdez oil spill) their entire way of life may change overnight.

"Kids don't know where they stand anymore," Erikson said. "Daddy's not fishing, the family has closed ranks, and everybody's staying home to take care of themselves. People seem jaded, scared, and apprehensive. Everything's different."

Such changes can reawaken children's fears about losing their parents because adults are busy with practical problems and their own emotional difficulties.

As a result, kids may regress to clinging, bed-wetting, thumb-sucking, and unwillingness to sleep at night. Psychologists say parents shouldn't worry; these reactions are normal. They recommend tolerating these behaviors temporarily to allow the child time to feel secure again.

Here are more tips from the Center for Mental Health Services:

1. Encourage children to talk about what they see on television and to ask questions.
2. Answer questions at a level they can understand and don't be afraid to admit you can't answer everything.
3. Let children know they can talk anytime. They'll probably have more questions as time goes on.
4. Establish a family emergency plan. Feeling they can do something constructive is comforting to both children and adults.
5. Monitor children's television viewing. Parents may want to limit exposure to graphic or disturbing programs. They also should watch reports about the disaster with children because these are times when they're likely to ask questions.
6. Help children understand there are no bad emotions and encourage them to express what they feel by talking, painting, drawing, or playing with toys.
7. Don't brood on blame.
8. To offset the tragedies children see, point out good things, such as heroic actions and neighbors helping each other.
9. Spend time with children. This will help them feel secure and calm their anxieties.

But again, the best thing parents can do is also the simplest.

"Just be honest," said Dr. Kati Arata, a clinical psychologist at the University of South Alabama. "Adults are so bad about hiding the truth from kids. Children pick up on things and what they imagine could be worse than the reality."

Remember...

Children need to understand the reason their parents are acting differently following a technological disaster. Be honest and reassure them that the family will work through the problem together.

Children may react to stressful situations by reverting to early habits of their development such as bed-wetting, thumb-sucking, and sleeplessness.

Children need to know that they can ask questions about what they see and hear and that they are secure within their families.

Allow children to express their emotions and talk about their emotions.

Show children that the adults are seeking solutions and not affixing blame or projecting anger into the family.

The Mood-Food Connection: Understanding Stress

Original 1999, updated 2004

Everybody's heard it. "Eat something. You'll feel better."

Some trauma victims do just that to alleviate the pain and anxiety they feel after a life-changing disaster, just as others turn to alcohol or cigarettes. Such behavior isn't uncommon among those who have lived through technological disasters.

"The Exxon Valdez oil spill certainly qualifies high-stress enough to make people act out in obsessive behavior," said Dr. Steve Kroll-Smith, a sociologist at the University of New Orleans.

Food is a primary object of such "obsessive behavior" because it's regarded as a source of pleasure and comfort.

"It's a learned behavior that usually starts very young," explained Dr. Jay Mulkerne, a clinical psychologist in private practice in Mobile, Ala. "What happens is you establish a relationship between your mood and what you eat."

But that relationship can be an unhealthy, even dangerous. For example, stress can give people an "excuse" to stray from a healthy diet.

"They say, 'Sweets are usually a no-no, but I'm going to do this for myself today to feel good,'" Mulkerne explained.

The good news is that understanding this connection between food and stress is the first step to breaking the cycle.

After recognizing that food won't make problems go away, the next step is to replace it with healthy ways to deal with anxiety. Dr. Kati Arata, a clinical psychologist at the University of South Alabama, recommends managing stress through exercise, a regular sleep pattern, and a healthy diet that includes vegetables, fruits, grains, and complex carbohydrates.

Limit sugar, salt, saturated fat, caffeine, and alcohol, and try to drink eight glasses of water a day. And don't keep tempting foods around the house.

"When you get the urge to eat, call somebody and talk until it passes," she said. "Or read a book or listen to music. The point is to minimize the opportunities to binge eat."

Losing one's appetite is another common reaction to anxiety. "Stress kicks your body into high gear," Mulkerne explained. "It all goes back to the 'fight or flight' instinct. If your body is in a constant state of alarm, it doesn't want food. The body is prepared to deal with the threat and the big meal will come later."

Once again, the way to kick the problem is to establish a healthy routine. Exercise, sleep, and eat regularly, "even if you don't want to," Dr. Arata said. "You must take care of yourself."

And finally, as with any problem, experts say you shouldn't be afraid to seek help. "People going through hard times are never alone," Mulkerne said.

Why does stress affect health?

Part of the answer lies in how the brain signals the release of stress hormones, during threatening situations. These chemicals trigger the body to produce other substances to increase energy levels.

Blood-sugar levels rise, heartbeat speeds up, and blood pressure increases. Muscles tense for action. The blood supply is diverted away from the gut to the extremities, helping the body deal with the event at hand.

These reactions can cause digestive upsets, headaches, tension in the neck, and backaches. “Turning on the stress response for years can create even more problems,” says Robert Sapolsky, Ph.D., a Stanford University neuroscientist.

For example, persistent stress has been linked to gastrointestinal disorders, including ulcers, and to high blood pressure, a major cause of heart attack and stroke.

Aside from its effects on the digestive system and the heart, stress can suppress the immune system, leaving the body more vulnerable to infections.

When technological disasters occur, impacted people may be unaware of the subtle changes in their feelings, attitudes, and behavior.

“Being under constant stress can result in a completely unhealthy lifestyle, which, in turn, fosters physical, social, and emotional problems,” stated Steve Picou, Ph. D., a sociologist from the University of South Alabama.

“We often just focus on stress as an outcome of technological disasters; however, the consequences of long-term stress may include serious physical problems,” Picou concluded.

Remember...

Negative emotions may trigger the desire or produce the opportunity to overeat because we feel we deserve a treat to boost our feelings.

Limit sugar, saturated fat, caffeine, and alcohol, and try to drink eight glasses of water a day.

Remove tempting foods from your home, office, or workplace. Get into the habit of eating set times each day and don't snack between meals.

Stress causes people to lose their appetite, but regular exercise, sleep, and eating habits will help the body remain healthy.

Anger and anxiety cause the body to react chemically to a situation, when the body is super-stimulated over time the physical effects could lead to heart attack or stroke.

Eating regular healthy meals, sleeping, and exercising contribute to your ability to handle stress, reducing problems in the body's gastrointestinal, blood, and immune systems.

Chronic Stress and Cancer: Is There A Link?

Original 1999, updated 2004

Stress plus vulnerability might equal cancer.

The equation sounds grim, especially for victims of technological disasters who can feel anxious for years afterward. The good news is it doesn't have to happen if they learn to manage the stress.

Although scientists disagree, some studies indicate depression and stress are two emotional states commonly linked to cancer. They don't cause cancer, but the studies suggest they may prey on the body's immune system and make it more vulnerable to disease.

Vulnerability is the lynch pin of the equation, according to Dr. Mike Edelstein, an environmental psychologist at Ramapo College of New Jersey.

"You're vulnerable to health problems if you're depressed and chronically stressed," he explained. "And if you're a victim, you feel vulnerable."

Depression can cause chemical changes that prompt the body to produce "bad" chemicals," explained Dr. Kati Arata, a clinical psychologist at the University of South Alabama.

In fact, many cancer patients report being stressed or depressed before developing cancer. "And once you have the illness, stress slows down recovery," Dr. Arata said.

Other medical experts aren't so sure about the connection.

"When you talk about stress and cancer you're getting into a fuzzy area," said Dr. Marcel Conrad, director of the University of South Alabama's Cancer Center. "Some studies show a relationship and some don't. It's not easy to prove."

However, he said one thing that is certain is that stress can induce some people to do things that are bad for them and that do cause cancer.

For example, smoking can lead to lung cancer; overeating is linked with cancer of the breast, prostate, and colon; and alcohol abuse (especially in conjunction with smoking) can contribute to cancer of the esophagus, tongue, and mouth.

"People under stress undoubtedly place themselves at greater risk for cancer when they do these things," Conrad said. "They can worsen their prognosis by not taking care of themselves."

The ways to avoid the cancer risk are the same ways to offset depression and other maladies. Eat right, sleep, exercise, and avoid tobacco, alcohol, red meat, and heavy dairy products.

"Stay busy and take your mind off what's troubling you," Conrad recommended. "And watching TV is not occupying your time because you're not participating."

Instead, he suggested activities such as reading, needlepoint, or any form of exercise. For proof that these ideas work, he pointed to the pharaohs of ancient Egypt.

"They didn't have much cancer," Conrad said. "They didn't smoke, they ate very little meat, and they didn't live in an industrial society. The answer to cancer is to prevent it. Live like the pharaohs."

Prevention comes through education. Remember, long-term stressful situations can produce cancer in vulnerable people. Be alert to behaviors which are not good for you, which may be caused by continuing stress. Respond positively. Only you can control your lifestyle.

Remember...

Depression and stress are thought to be commonly linked to cancer through the immune system.

Chronic stress causes people to begin or increase habits (smoking, overeating, and alcohol abuse which are known to cause cancer.

To reduce your risk of cancer: eat right, sleep, exercise and avoid alcohol, tobacco, red meat and heavy dairy products.

Coping with Technological Disasters

Original 1999, updated 2004

It's been seven years since the Exxon Valdez ran aground and spewed 11 million gallons of oil into Alaska's Prince William Sound. Seven years of heartache, uncertainty, depression, and anger disrupting fishing and Native communities surrounding the Sound.

Sociologists call the aftermath of a technological disaster a "corrosive community," which means people are torn apart instead of drawn together by the trauma they've suffered.

"Everybody is hurting," said Dr. Steve Kroll-Smith, a sociologist at the University of New Orleans. "They've lost a way of living, an economic investment, and their sense of empowerment. Nobody escaped without pain."

In the long run, the way for people to recover from a technological disaster is to reclaim what's been taken from them: Their sense of community.

The first step is to understand what's happened, said Dr. Mike Edelstein, an environmental psychologist at Ramapo College of New Jersey.

"In a corrosive community, people feel robbed of their health, their ability to protect themselves and their families, their power over their own lives, and their sense of looking forward to a happy, healthy, safe future," he explained. "Therefore, trust of government, people - everything - is affected."

As a result, victims of man-made disasters naturally want to withdraw and try to shelter their own families. But following this instinct is the worst thing they can do. Personally, it leads to depression. Collectively, it leads to a corrosive community.

"A technological disaster throws into question all the ways people deal with each other and stretches the bonds that holds them together," said Dr. Kai Erikson, a Yale University sociologist who has studied these events for more than 20 years. "They don't realize how much they need each other. They close ranks and stay home to take care of themselves and their families."

And when people are hurting, it's easy to forget others share the pain. "People must understand something has happened to the community at large, not just to them," he said.

Experts say the first steps toward ending the corrosive community are personal ones.

"First, accept parts of this (disaster) will stay with you," Dr. Edelstein advised. "Second, recognize you have reason to be angry about it and your feelings are valid. And third, you don't have to forgive or forget, you can decide not to let it preoccupy you. You lost control over some things, but you can exercise control over other areas of your life."

One of the best ways to do that is to reach out to others. Even the smallest act of kindness can be the first step to collective healing.

"Help each other, even it's someone you don't like," said Dr. Bill Freudenberg, a professor of rural sociology and environmental studies at the University of Wisconsin. "If you're nice to the town grouch, maybe he won't be so grouchy to someone else. Good can be contagious."

Focusing on the few positive outcomes also can be helpful. For example, many victims of technological disasters start taking better care of themselves.

"If people have one strike against them, they want to prevent the other two strikes," said Ramapo College's Dr. Edelstein. "So they take steps such as eating right and stop smoking."

Another positive benefit is legislation targeted to prevent another disaster like the Exxon Valdez oil spill. Under the Oil Pollution Control Act of 1990, oil tankers must now receive certificates of financial responsibility, which they can buy from insurance companies. The act also increased liability limits and called for double-hulled tankers by 2015.

Drawing together to create other positive outcomes also will help people heal. For example, participate in grass roots organizations to deal with prevention, work to improve schools, or look for ways to build the community culturally, socially, and economically.

"Focus on common goals that are positive," advised Dr. Kati Arata, a clinical psychologist at the University of South Alabama. "You don't have to forget the disaster, but stop letting it control the community."

In the end, the cultural factors that make Alaska fishing and Native communities strong will be the same ones that people will draw on to recover: Self-reliance and mutual-helpfulness.

"It's a great place to start, with decent people treating each other decently," said the University of Wisconsin's Freudenberg. "Draw on the good that's still there. These communities still have that 'oomph left deep inside."

Through education, awareness, and understanding of the Exxon Valdez disaster, residents of Prince William Sound impacted by the tragic accident can begin to transform both themselves and their communities in a positive manner. Hopefully, this series served as an impetus for such future action.