Pathological gambling

Treatments are based on those used to treat addiction.

Gambling has been around for thousands of years. The earliest known six-sided pair of dice, for example, dates back to about 3,000 B.C. Today rolling the dice is only one of many gambling activities available to people.

Currently all states except for Hawaii and Utah have legalized some type of gambling, including lottery games, slot parlors, and casinos. National surveys in 1975 and 1998 found that 61% to 63% of Americans gambled at least once a year. Most people are able to enjoy this activity without harming their health or livelihood.

Problem gambling behavior was first mentioned in the medical literature in the early 1800s, but the American Psychiatric Association did not classify pathological gambling as a psychiatric disorder until 1980, in the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM). An ongoing discussion in the mental health community is whether gambling is an impulse control disorder—as it is currently classified in the DSM-IV—or whether it is better understood as an addiction, as the DSM-V proposes (see “Symptoms of pathological gambling”).

Epidemiological studies have found that pathological gambling often occurs in conjunction with dependence on a chemical substance. While roughly 1% to 3% of people in the general population develop a pathological gambling disorder at some point in their lives, as many as 5% to 33% of people with substance use disorders will do so. One national survey found that pathological gamblers were five times as likely as those in the general population to be dependent on alcohol, and nearly seven times as likely to be dependent on nicotine.

The DSM-V work group cited other evidence to support its proposal that pathological gambling be considered an addiction. Genetic studies suggest that people who develop pathological gambling or a substance use disorder are more likely than those in the general population to have particular gene types (alleles) associated with impulsive behavior. Brain imaging studies have reported that both substance use disorders and pathological gambling create similar types of dysfunctions in a neural circuit involved in reward processing and decision making.

Regardless of how pathological gambling is eventually classified, however, many of the strategies for treating it are based on those used for substance use disorders. Although there is no consensus yet about which therapies are best, several have emerged as the most promising.

Self-help and psychotherapy

Gamblers Anonymous, a 12-step program modeled on Alcoholics Anonymous, is probably the most common intervention...
Gambling continued

for pathological gambling. This self-help program is available through more than 1,000 chapters across the United States. Participants acknowledge they are powerless over their gambling behavior and try to recover with the help of other members and through reliance on a spiritual higher power. The small amount of published research on this topic suggests that Gamblers Anonymous may help patients abstain from gambling, especially when they attend meetings regularly or combine attendance with psychotherapy or other treatment.

Although various types of psychotherapy have been investigated for treating pathological gambling, most evidence has been collected on cognitive behavioral therapy (CBT). Patients can either meet with a therapist or rely upon a manual of instruction to learn how to recognize distorted thinking or rationalizations about gambling, change the way they think about gambling (cognitive restructuring), learn to identify and avoid gambling triggers, and develop other rewarding activities.

The largest randomized controlled trial of CBT for gambling involved 231 participants. All received referrals to Gamblers Anonymous. Participants were then randomly assigned to eight weeks of participation in one of three interventions: weekly one-hour individual CBT sessions with a therapist, a CBT manual to use on their own at home, or to no additional treatment beyond attendance at Gamblers Anonymous.

By the end of the study, participants in all three groups reduced levels of gambling, but those assigned to individual CBT were significantly more likely than those in the other two interventions to decrease gambling days and dollars wagered per month. At a 12-month follow-up assessment, however, there was no significant difference between the interventions. Roughly the same percentage of participants in all three arms—60% to 66%—were classified as abstinent or substantially improved.

Another psychotherapy option that has been studied is motivational interviewing, which aims both to promote readiness to change and commitment to treatment. The therapist helps a patient to explore and resolve mixed feelings about giving up gambling, and to develop an individualized set of goals.

In one controlled trial, investigators randomly assigned 68 pathological gamblers either to attendance at Gamblers Anonymous or to six sessions of an intervention that combined motivational interviewing with desensitization (exposure to gambling cues combined with training in relaxation and—similar to CBT—coping skills to subdue gambling urges). At the end of the eight-week study, investigators assessed people in both groups, using a standard clinical instrument to assess gambling urges and behaviors. They found that 21 of 33 people (64%) assigned to the motivational interviewing and desensitization arm had abstained from gambling for at least a month at that point, compared to only six of 35 (17%) who attended Gamblers Anonymous.

Preliminary research suggests that even brief interventions may help people reduce gambling behavior. For example, in one controlled study, investigators randomly assigned 117 college students to one of four arms: 10 minutes of advice about gambling, a single session of motivational enhancement therapy (a briefer form of motivational interviewing), one session of motivational enhancement therapy in addition to three sessions of CBT, or assessment of symptoms only (which served as the control). When compared with the control arm, all three interventions significantly decreased gambling behaviors and dollars wagered by the end of the six-week study.

Medication options

The FDA has not approved any drugs specifically for use in treating pathological gambling, and the research suggests that medications used “off label” are of limited help.
Uncontrolled gambling shares some neurobiological features with addictions. But, like its brethren, it is a complex human behavior that defies easy categorization. The hope is, by seeing it in a different diagnostic context (as proposed by the DSM-V), clinicians will be able to offer treatments that are most likely to help.

Much more research is needed to determine the best treatment strategies. In particular, unanswered questions include what therapies are most effective, the optimal duration of treatment, how long benefits persist following an intervention, and how to treat pathological gambling in conjunction with co-occurring psychiatric disorders.

Opioid antagonists. This class of drugs includes medications such as naltrexone (ReVia) and nalmefene (Revex) that are most often used to treat alcohol dependence. By blocking opioid receptors, the drugs work by modulating reward circuits in the brain, especially in neural areas involved in compulsive behavior and addiction.

The rationale for using opioid antagonists to treat pathological gambling is that these drugs will help subdue the desire, or “craving,” that contributes to gambling behaviors. Several randomized controlled studies suggest such drugs are more effective than placebo.

SSRIs. Investigators once thought that selective serotonin reuptake inhibitors (SSRIs) might treat pathological gambling by reducing impulsive behavior. Although preliminary studies suggested that SSRIs had promise in this regard, larger and better-controlled studies have concluded they offer no benefit over placebo in reducing gambling behaviors and urges. These drugs may be helpful, however, as adjuncts to other therapies—especially in improving depression or anxiety.

Other medications. Several randomized controlled trials have evaluated mood stabilizers for pathological gambling, with mixed results. These drugs may be effective at reducing gambling urges in patients who also have bipolar disorder, mainly by reducing mania.

Bupropion (Wellbutrin), an antidepressant that affects two neurotransmitters, dopamine and norepinephrine, has helped people to give up smoking but has not proven effective in pathological gambling. Researchers are now investigating novel agents, such as those that act on glutamate (an excitatory neurotransmitter), to find new options.

Summing up

Uncontrolled gambling shares some neurobiological features with addictions. But, like its brethren, it is a complex human behavior that defies easy

Symptoms of pathological gambling

According to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV), a patient who has at least five of the following 10 symptoms—and who is not having a manic episode—meets the criteria for diagnosis of pathological gambling. The DSM-V draft revision deletes one of the symptoms (starred, below) and reduces the number of criteria necessary for a diagnosis from five symptoms to four. It also proposes that pathological gambling be reclassified from an impulse control disorder to an addiction.

- Preoccupation with gambling
- Gambling with increasing amounts of money
- Has tried to control, decrease, or stop gambling repeatedly without success
- Feels restless or irritable when trying to cut back on gambling
- Gambles to escape problems or relieve anxiety, depression, or other dysphoric moods
- Returns to gambling after losing money in order to recover the losses
- Lies about level of gambling and otherwise conceals behavior from family, friends, therapist, and others
- Has jeopardized or lost a significant relationship, job, or opportunity because of gambling
- Asks others for money to solve financial problems caused by gambling
- Has stolen money, committed forgery, or engaged in other illegal acts to finance gambling.*

* This symptom has been dropped from the draft DSM-V.
Alternatives to antidepressants during pregnancy

Options include psychotherapy, acupuncture, massage, and electroconvulsive therapy.

Although pregnancy is a joyful time for many women, others struggle with depression and other mood disorders. The limited data available suggest that 7.5% of women who become pregnant develop major depression, and another 7% have minor depression, before giving birth.

Consensus is growing that depression during pregnancy should be treated, for the sake of both the mother and the developing fetus. Among other risks, untreated depression during pregnancy increases the likelihood that a woman will have postpartum depression and give birth to a lethargic, irritable baby whose weight is lower than normal.

Medication is one option for treating prenatal depression (see “Medications for prenatal depression”). In 2003, 13% of pregnant women used antidepressants at some point during pregnancy. But anecdotal reports from clinicians suggest that many women prefer not to take antidepressants during pregnancy, mostly because of concern about exposing the developing fetus to any type of drug.

Guidelines issued jointly in 2009 by the American Psychiatric Association (APA) and the American College of Obstetricians and Gynecologists (ACOG) offer detailed advice for clinicians. In general, the APA-ACOG guidelines recommend psychotherapy for pregnant women with mild to moderate depression, and medication for patients with severe depression, psychosis, bipolar disorder, a history of suicide attempts, or a co-occurring psychiatric disorder that requires drug treatment.

Unfortunately, scant research exists on alternatives to medication—whether psychotherapy or other modalities. As such, a decision about how best to proceed is an individual one and depends on clinical experience and the patient’s preference.

Psychotherapy

Only one randomized controlled trial has evaluated any type of psychotherapy for prenatal depression—interpersonal psychotherapy. This is a brief, highly structured psychotherapy that focuses on how a patient can improve mood by focusing on interactions with other people. Investigators at Columbia University have adapted standard interpersonal therapy to address issues specific to pregnancy, such as helping women to deal with transitions to a new (or expanded) role as a parent, or how to deal with medical complications of pregnancy.

To evaluate whether their adaptation was effective in treating prenatal depression, the researchers recruited 50 pregnant low-income women diagnosed with major depression according to criteria in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV). They randomly assigned the women either to interpersonal psychotherapy or a parenting education program that covered topics such as parenting skills and early childhood development. Women in both groups attended 45-minute weekly sessions for 16 weeks.

Based on scores from three standard clinical instruments, mood improved in both groups, although the women who responded to interpersonal therapy improved faster and significantly more than those assigned to parent education. Scores on the Hamilton Depression Rating Scale, for example, showed that mood improved significantly in 11 of 21 women (52%) in the interpersonal psychotherapy group, compared with five of 17 (29%) in the parenting education group.

Basing largely on this study, the APA-ACOG guidelines recommend interpersonal therapy as an option for prenatal depression. Cognitive behavioral therapy is another option, based on preliminary research in pregnant women and randomized controlled trials in other populations. Less evidence exists for supportive psychotherapy and psychodynamic therapy. Since there is little or no research on which psychotherapy is likely to be best for particular patients, clinicians and patients are advised to make a choice based on clinical experience and personal preference.

Acupuncture and massage

Acupuncture involves the insertion of tiny needles into specific areas of the body in order to alleviate symptoms. The practice, which originated in Asia, is premised on a philosophy that illness results from an imbalance in “life energy” (known as qi, pronounced CHEE), and that stimulating various “acupoints” can restore balance. Although a review by the Cochrane Collaboration (an international group of experts) concluded that there was not enough evidence to recommend acupuncture as a treatment for most patients with depression, a randomized controlled study published after that review concluded that a specific type of acupuncture might help women with prenatal depression.

The Cochrane reviewers, like others who have been critical of acupuncture research, note the difficulty of controlling for the placebo effect—the psychological benefits of undergoing treatment—and in “blinding” participants to what type of intervention is being used. Investigators at Stanford University designed their study of acupuncture in pregnant women in order to address these concerns.

The investigators recruited 150 pregnant women with major depression, diagnosed according to DSM-IV criteria. They randomly assigned 52 to acupuncture specifically designed for depression, 49 to another form of acupuncture, 35 to a combination of acupuncture and antidepressant medication, and 24 to antidepressant medication alone. Women in all groups were followed for 12 weeks. The acupuncture group was provided with electroacupuncture, an acupuncturist performed a specific sequence of moxibustion (a traditional Chinese technique involving the burning of a herbal preparation on the skin), and the women were asked to do the needling themselves.

The researchers found that women in the acupuncture group showed a significantly greater improvement in mood compared with women in the other groups. The acupuncture group also showed a greater reduction in anxiety and a greater change in self-reported coping strategies. Investigators did not find any differences in the rate of side effects between the groups, although women in the acupuncture group were more likely to report headaches. The researchers concluded that acupuncture might be a useful adjunct to antidepressant medication for pregnant women with major depression.

They also found that women who underwent acupuncture showed greater reductions in maternal and neonatal stress compared with those who underwent no intervention. The researchers suggested that acupuncture might help reduce the stress associated with pregnancy and childbirth, which can have a significant impact on maternal and neonatal health.

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At the end of the study, women in the 16 weeks. In an active control group, they randomly assigned the women to massage therapy (the placebo control), and 49 to massage therapy (the placebo control). In a further effort to eliminate bias that can occur when practitioners or patients expect to get better from an intervention, the investigators “blinded” both participants and acupuncturists to the type of acupuncture being delivered. (The interventions were designed by experienced acupuncturists but actually provided by trainees unaware of the patients’ diagnoses.)

All interventions consisted of 12 sessions delivered over eight weeks. At the end of the study, women in the depression-specific acupuncture group were significantly more likely to have responded to treatment—defined as lower scores on the Hamilton Depression Rating Scale. The investigators reported that 63% of the women in the depression-specific acupuncture group responded to treatment, compared with 38% in the active control acupuncture group, and 50% in the massage group. There was no significant difference between the interventions in terms of remission, however, with roughly one in three women in each group no longer classified as depressed on the basis of the Hamilton Depression Rating Scale.

The study suggests that acupuncture may be an option for treating prenatal depression, but that massage may also be helpful. The authors surmise that both approaches ease the physical discomfort of pregnancy and in turn may improve mood.

Additional support for massage comes from a less rigorous study conducted by researchers at the University of Miami Medical School. They recruited 84 depressed women in their second trimester of pregnancy (although the researchers did not provide details of how they assessed mood). They randomly assigned the women to one of three groups. Women assigned to the massage intervention received 20-minute massages twice a week for 16 weeks. In an active control group, women learned and practiced progressive muscle relaxation on their own, for the same time and duration as the massage intervention. In another control group, women received only standard prenatal care. The investigators asked the women to rate their mood symptoms at weeks one and 16, and found that women in the massage therapy group reported significantly lower levels of anxiety, depression, and leg and back pain when compared with those in the other two groups.

**Medications for prenatal depression**

Selective serotonin reuptake inhibitors (SSRIs) are the drugs most often used to treat depression during pregnancy.

- SSRIs can be used during the first trimester of pregnancy without significantly increasing risk of fetal heart defects or other major congenital malformations. (Preliminary research suggested that paroxetine [Paxil] might be the exception to this general rule, but a larger study concluded that this drug did not increase risk of congenital heart defects in offspring.)
- The use of SSRIs late in pregnancy may lead to short-term withdrawal symptoms in as many as 25% of newborns after delivery. Typical symptoms include tremor, restlessness, mild respiratory problems, and weak cry. These problems usually resolve in one to four days.
- It remains unclear if SSRI use later in pregnancy increases risk of persistent pulmonary hypertension of the newborn, a serious but rare respiratory problem.

For more information, see *Harvard Mental Health Letter*, December 2008.

**Bright light therapy**

Bright light therapy helps adjust circadian rhythms that affect sleep and mood. This therapy is dosed in terms of lux, a measure of illumination. (A sunny day is 50,000 lux, while indoor light is about 100 lux.)

Investigators at Yale University conducted a double-blind, placebo-controlled study involving 10 pregnant women with major depression. The researchers randomly assigned the women either to bright light treatment (7,000 lux) or placebo light treatment (500 lux). Mood improved in both groups after five weeks of treatment, but there was no significant difference between the two interventions. As such, there is not yet enough evidence to recommend bright light therapy as an option for prenatal depression.


For more references, please see [www.health.harvard.edu/mentalextra](http://www.health.harvard.edu/mentalextra).
Stress and the sensitive gut

Psychotherapy may help ease persistent gastrointestinal distress.

Functional gastrointestinal disorders affect 35% to 70% of people at some point in life, women more often than men. These disorders have no apparent physical cause—such as infection or cancer—yet result in pain, bloating, and other discomfort.

Multiple factors—biological, psychological, and social—contribute to the development of a functional gastrointestinal disorder. Numerous studies have suggested that stress may be particularly important, however. The relationship between environmental or psychological stress and gastrointestinal distress is complex and bidirectional: stress can trigger and worsen gastrointestinal pain and other symptoms, and vice versa. This is why psychological therapies are often used in combination with other treatments—or even on their own—to treat functional gastrointestinal disorders.

A second brain

Life-sustaining functions, such as breathing, heartbeat, blood pressure, and body temperature, are regulated through the autonomic nervous system. This complex network of nerves extends from the brain to all the major organs of the body and has two major divisions. The sympathetic nervous system triggers the “fight or flight” response. The parasympathetic nervous system calms the body down after the danger has passed. Both the sympathetic and parasympathetic nervous systems interact with another, less well-known component of the autonomic nervous system—the enteric nervous system, which helps regulate digestion.

The enteric nervous system is sometimes referred to as a “second brain” because it relies on the same types of neurons and neurotransmitters that are found in the central nervous system (brain and spinal cord). After sensing that food has entered the gut, neurons lining the digestive tract signal muscle cells to initiate a series of intestinal contractions that propel the food farther along, breaking it down into nutrients and waste. At the same time, the enteric nervous system uses neurotransmitters such as serotonin to communicate and interact with the central nervous system.

This “brain-gut axis” helps explain why researchers are interested in understanding how psychological or social stress might cause digestive problems. When a person becomes stressed enough to trigger the fight-or-flight response, for example, digestion slows or even stops so that the body can divert all its internal energy to facing a perceived threat. In response to less severe stress, such as public speaking, the digestive process may slow or be temporarily disrupted, causing abdominal pain and other symptoms of functional gastrointestinal disorders. Of course, it can work the other way as well: persistent gastrointestinal problems can heighten anxiety and stress.

Psychotherapy options

Reviews suggest that several types of psychotherapies may help ease persistent gastrointestinal distress—or at least help people learn to cope with such symptoms. Although this research has limitations—in particular, many studies have been criticized for using a waiting-list control, which does not allow investigators to account for the therapeutic effects of receiving medical attention—the evidence suggests that the following psychotherapies may provide some relief for many people with severe functional gastrointestinal disorders.

Cognitive behavioral therapy (CBT).

This standby of psychotherapy helps patients to change counterproductive thoughts and behavior and learn coping skills to better manage stress and anxiety. One three-month study involving 431 adults with functional gastrointestinal disorders found that CBT was significantly better than patient education at improving overall symptoms and well-being, but had little or no effect on pain. This and other research suggests that CBT may be most useful in helping patients to cope with persistent gastrointestinal distress, rather than reducing pain. Preliminary research suggests that CBT can be modified for children with such disorders.

Relaxation therapy. This encompasses a number of techniques designed to help people relax and reduce reactivity to stress. Techniques include progressive muscle relaxation, visualization, and restful music. Relaxation therapy has seldom been studied alone, but the research suggests that it is effective for gastrointestinal disorders when it is combined with CBT.

Hypnosis. Gut-directed hypnotherapy—which combines deep relaxation with positive suggestions focused on gastrointestinal function—may be helpful for people whose symptoms occur even without obvious stress. In one small randomized controlled study, patients with severe irritable bowel syndrome underwent three months of hypnotherapy that involved placing their hands on their abdomens while being asked to feel warmth and imagining they had control over gastrointestinal function. By the end of the study, symptoms had significantly improved in the hypnotherapy group when compared with a control group who underwent supportive psychotherapy. Another study suggests that benefits of gut-directed hypnosis may persist for years.


For more references, please see www.health.harvard.edu/mentalextra.
When people who are addicted to alcohol, nicotine, or a drug try to kick the habit, the first challenge is dealing with withdrawal symptoms such as agitation, nausea, and problems concentrating. Depending on the substance, the withdrawal process may take days to weeks. But intense cravings for the desired substance may continue for years—often triggering relapse.

Cravings may occur at the sight, smell, or memory of anything associated with the addiction: seeing a hypodermic needle, smelling cigarette smoke, or even walking past a bar. The source of these cravings lies in the brain. The process of addiction not only alters neural circuits involved in pleasure and motivation, but also exerts a lasting hold on people through the process of conditioned learning and long-term memory.

All addictive substances (and many pleasurable activities) release the neurotransmitter dopamine in the nucleus accumbens, a cluster of nerve cells lying deep in the brain. Initially researchers thought that dopamine acted as a hedonic signal—one that registers pleasure in the brain—and that this signal prompted people to continue seeking the substance. But more recent research suggests that dopamine interacts with another neurotransmitter, glutamate, to hijack the brain’s system of reward-related learning.

According to the current theory, repeated exposure to an addictive substance causes nerve cells in the nucleus accumbens and the prefrontal cortex—the area of the brain involved in planning and executing tasks—to communicate in a way that links pleasure with desire and action (seeking the substance). Meanwhile the hippocampus and the amygdala store information about environmental cues associated with the desired substance, so that it can be located again. These memories help create a conditioned response—or craving—whenever those environmental cues recur in the form of situations, people, or places associated with the desired substance.

Recognizing that cravings exert such a powerful hold on people, clinicians and self-help groups emphasize that recovery is a lifelong process and provide the tools to help a person navigate this journey. Cognitive behavioral therapy, for example, suggests ways that patients can avoid encountering addiction triggers or find new sources of pleasure. Self-help groups and motivational enhancement therapy reinforce a patient’s focus on the value of abstinence.

The hope is that gradually new types of associations and memories will become encoded in the brain—and help a patient finally overcome the addiction.


Q I was half listening to the television the other night and heard something about kids dying from the choking game. What is that? How can I tell if my child might be playing this game?

A As you’ve surmised, the choking game is a misnomer for an activity that can be deadly. The phrase refers to the practice of self-strangulation or strangulation of one person by another in order to produce a feeling of euphoria. Although “choking game” is probably the most common nickname for this practice, it goes by many others—the blackout game, scarf game, pass-out game, tap out, elevator, flatliner, and space monkey, to name a few. The choking game differs from autoerotic asphyxiation (choking oneself during sexual stimulation).

During the choking game, youths typically tie a belt, scarf, or rope around their necks until they feel light-headed. In other cases, one youth will choke another to the point of fainting. By placing pressure on the neck and airway, the youths are reducing oxygen to the brain (resulting in a state called cerebral hypoxia), which causes light-headedness. Youths learn the techniques by watching peers do it, often at parties, but sometimes also by watching videos posted online.

A 2008 report by the Centers for Disease Control and Prevention (CDC) was the first attempt to document deaths from the choking game. The findings indicate that the choking game is a recent phenomenon, but one that is growing in frequency among youths. After reviewing data since the 1970s, the CDC identified 82 probable choking-game deaths. All occurred from 1995 onward, and most (66 of the deaths) occurred from 2005 to 2007. Victims ranged in age from 6 to 19, but the majority of deaths involved males ages 11 to 16.

Short of death, the game may cause many other significant symptoms. Brain cells, which are very sensitive to a loss of oxygen, can begin to die within minutes. A child surviving the game several times can theoretically end up with the equivalent of multiple small strokes. The adolescent brain may be more resilient than older brains, but brain function is still likely to suffer. The youth may experience an intellectual decline, perceptual disturbances, difficulty with planning or emotional distress (such as depression or irritability).

After the CDC published its report, the Oregon Public Health Division added a question about the choking game to its annual survey of eighth and 11th graders. The Oregon Healthy Teens survey queries a representative sampling of students anonymously about their health, substance use, sexual activity, and physical activity. About 36% of eighth graders who answered the question said they had heard of someone engaging in the choking game, and nearly 6% said they had tried it themselves. In this survey, female students were as likely to say they had tried the practice as males.

The Oregon health survey found that certain young people may be more at risk than others. Nearly 16% of youths who reported substance use or mental health problems in the survey said they had tried the choking game, compared with about 2% of youths without such risk factors. (In this survey, substance use was defined as use of alcohol, cigarettes, marijuana, or other illegal drugs in the 30 days prior to the survey. Mental health problems included suicidal ideation, self-rated fair or poor mental health, unmet mental health needs, or gambling for money in the previous 12 months.)

As to your question about how to tell if your child has ever tried the choking game, you can watch for certain physical signs. These include welts or markings on the neck, bloodshot eyes, frequent or severe headaches, and changes in thinking or “mental status.”

Of course, the simplest and most direct method is to ask your child about the game, and to share your concern about its dangers. Young people may not admit it, but they usually listen to what their parents say.

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