Stress: Part II
The psychology of stress

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In this second article of a three-part series, we discuss several psychological and social factors that can increase or decrease the stress response, or even trigger it in the absence of a physical stressor.[1] Mood, personality characteristics, coping style, suppressed anger, a sense of hopelessness, psychological vulnerability, and defensiveness affect the way a person deals with stress and thus can potentially modulate the impact that stress will have on the immune system.[2] A perception that things are getting worse increases stress which increases the level of glucocortoids in the blood that causes physical damage over the long term.[1] In contrast, people deal better with stress when they have outlets such as exercise or hobbies, or even imagining outlets. [1]

Stress is the physical and emotional wear and tear resulting from real or imagined problems. These problems include:[3]

- Pressures of everyday life
- Conflicts including choices and arguments
- Frustrations

If you see yourself or someone you care about in the descriptions below, know that there is hope to develop better ways of coping with stressors and to reduce the health problems associated with stress. The exception to this is people in poverty, which is a societal problem we must all work to solve.

Intimacy, community, and social support

Social support is very protective for humans.[1] This is true for both long-term and short-term instances of stress.[1] People need to be needed; it gives purpose to life.[3] Caring for and protecting children, pets, and other loved ones is a powerful motivator. Social interaction has been shown to be critical to life, and to mental and physical development.[3] People with emotionally supportive relationships are less likely to respond to stress with illness than are adults without such support.[3] Things that promote a sense of intimacy, community, and connection can be healing. [4] A feeling of isolation, not being connected with other people and/or something larger, and not being known honestly and deeply by anyone leads to "emotional and spiritual heart disease" with potential physical manifestations related to chronic stress. [4] One can be surrounded by people and engaged in many social activities and still feel isolated. [4] A number of studies have shown that people who feel isolated have three to five times higher mortality than people who do not feel isolated. [4]

For most pet owners, animals fill their lives with companionship and affection, and studies show that the presence of a pet reduces the stress response, relieves depression, reduces blood pressure and triglycerides, and improves exercise habits, all of which lower the risk of heart disease.[5] Studies also show that animals raise self-esteem, significantly lower anxiety levels, improve attitude toward others, and open lines of communication, If a pet doesn't fit into your lifestyle, volunteering at a local animal shelter or helping neighbors with pet-sitting can provide the benefits of interaction with animals without the responsibilities.[5]

Emotions

Emotions are known to affect memory.[6] The magnitude of how an experience is remembered is affected by the emotional state of the individual. If we are extremely happy, we are more likely to remember an event.[6]

In contrast, repressed memories are an extreme example of changes that take place in the brain during highly stressful or traumatic events. A traumatic experience, such as rape, death or war, may be forgotten or repressed from conscious memory.[6] These events change the chemistry of the brain.[6] In such a case, it is likely that something happens in the cortex to the storage and retrieval mechanism of the hippocampus, and the amygdala "learned" from the experience. (Note: Please refer to our previous article for a detailed discussion of the hippocampus and amygdala.) A fear or stress response may occur in the future in a similar situation without us consciously remembering any similar event in our past.

As we mentioned in the first article, peptides are actually the biochemical units of emotion. The various hormones, chemicals and receptors in the body are activated through emotions.[7] The parts of the brain long known to be associated with the experience of emotions are actually loaded with peptide-information substances and their receptors.[7] There are such substances and receptors in almost every cell in the body.[7] Not a lot is known about how this whole system works, but it is clear that emotions have a direct impact on the physiology of the body, memory, and the balance of health.[7]

Predictability

Unpredictability makes stressors much more stressful.[1] Vague, predictive information can actually increase stress by having too little information.[1] Information either just before or long before the stressor does little to alleviate psychological anticipation.[1]

Predictability can be helpful in certain circumstances by allowing us to use different mental strategies to cope with the oncoming stressor.[1] People and other organisms habituate to repeated stressors, so that something that is stressful at first becomes less stressful as it occurs over and over again, resulting in a much smaller stress response.[1]

Control, locus of control, and learned helplessness

Belief that you have control generally reduces the response to stressors.[1] It is not necessary to actually exercise that control, but it is important to know it is available. For instance, air travel is safer than driving, however people are afraid of flying much more than driving.[1] This is because most people believe they are above average drivers and have more control over the situation.[1]

If you feel you can control the stressor, but fail to do so, you will feel worse than if you had no control. In truly awful situations, a belief that you have control is damaging because you will feel appalled by the disaster you didn't prevent. A belief that you had control and used it helps because you will think things could have been much worse if you hadn't acted, even if the control is artificial and really had no effect on the outcome at all.[1]

Ability to learn information or to perform simple tasks is impaired if people are stressed in a situation where they cannot control the stressor. Subsequent coping abilities are impaired as well. In some people, it is so severe that they will not attempt even the simplest task to improve their life situation.[1] This is called "*learned helplessness*" and it can be induced very easily. It is especially easy to invoke in people who generally believe that the world operates due to chance or luck (i.e., an external locus of control).[1] It is less easy to invoke in people who believe they are largely masters of their own fate (i.e., an internal locus of control).[1] Learned helplessness affects people's perception of the world, so even if they do make an attempt at a coping response, they can't tell if it made any difference. Their perception shifts from the fact that they cannot control the *current* situation to the belief that they will never have any effect on future situations.[1] Certain circumstances seem to lead to this type of thinking. For example, if a teacher or loved one exposes a child to uncontrollable stressors at a critical time in the child's development, the child may grow up with distorted beliefs about what they cannot learn or cannot do.[1] Loss of a parent early in life is another example of an uncontrollable stressor; it puts the child at risk for later depression through learned helplessness.[1]

Depression

There are many types of depression, but statistically, stress and the onset of depression tend to go together.[1] People experiencing a lot of life stress are more likely to sink into major depression.[1] 5-20% of the population succumbs to major depression at some point in life while facing daily ups and downs.[1] A

genetic predisposition to depression creates a 50% chance of developing it.[1] Environmental factors, such as stress, are responsible for the remaining 50%.[1]

Increased glucocortoids in the bloodstream increase the risk of depression. People suffering from depression, anxiety, panic disorder, malnutrition, and alcohol abuse often have elevated glucocortoid levels.[8] The outside appearance of a depressed person is one of immobility and perhaps lethargy, but internally, the person is boiling with emotional turmoil and stress.[1]

There is conflicting research whether stress and high glucocortoid levels initiate depression or if the depression is the source of the stress and resulting high glucocortoid levels. In some patients, it appears that elevated glucocortoid levels cause depression and the use of anti-depressants lowers glucocortoid levels.[1] But in about half of repeatedly depressed patients, glucocortoid levels are not elevated, so it's unknown whether this only occurs in the first few rounds of depression, certain individuals, or for some other reason.[1]

Personality, temperament, and stress consequences

Personality and temperament are very important in understanding why some people are more prone to stress-related diseases.[1]

Type A Personality

Someone with a Type A personality is competitive, overachieving, time-pressured, impatient, and occasionally hostile. Type A personalities are those who usually get worked up and angry at things that the rest of the world does not find very provocative.[1,2] Their bodies dump more epinephrine and norepinephrine into their bloodstreams that eventually causes high blood pressure.[1]

Initially, it was thought that a Type A personality was linked to higher risk of stress-related diseases. Later it was found that hostility was the only significant predictor. This was consistent across very different populations, many studies, and even when variables such as age, weight, blood pressure, cholesterol levels, and smoking were controlled.[1, 2, 3] Openly hostile and angry people have a high rate of cardiovascular disease, but those who try not to express hostility have an even higher rate.[1] Repressing the expression of strong emotions appears to exaggerate the intensity of the physiological response that accompanies them.[1]

More recent studies have shown that anger, depression, and possibly other aspects of personality are also associated with significant overall mortality across all diseases, not just heart disease.[1, 2] An alternative view still maintains that at the core of hostility is the "time-pressuredness" of all Type A personalities since they tend to be less able to savor the moment, are always rushing off to accomplish something, constantly feel insecure, and are angry when anything or anyone holds up their progress.[1]

Alternatively, people with Type B personalities (i.e., the calm, laid-back, easy-going types) almost never have coronary heart disease before 70 years of age even if they smoke, eat fatty foods and don't exercise.[3]

There are three basic elements of the Type A personality:[3]

- Speed/impulse
- Competitiveness
- Anger/hostility

The first two elements allow for socially acceptable outlets to stress, such as through hobbies, sports, and in business. The third element, anger or hostility, has no personal or socially acceptable outlet, so it results in harmful wear and tear from repression.[3]

Repressive Personalities

Repressives are people who show no outward signs of stress at all.[1] They are people we tend to envy because they seem to have everything together and are hard-working, solid, and stoic. Personality tests show that they are not depressed or anxious, and they truly are mentally healthy, happy, productive, and socially interactive.[1] What is wrong is that they need social conformity, are uncomfortable with ambiguity, and dread social disapproval.[1] These individuals order their world to a high degree, dress the same way every day, drive the same way to work at the same time every day, eat the same foods each day, and avoid

surprises.[1] Emotions tend to be one-dimensional and in black/white terms. Repressives inhibit negative emotions, but if they admit feeling them, they experience them in only one dimension. Non-repressives might say they feel a bit angry, a bit sad, and a bit disgusted, while repressives report steadfastly that they feel only one emotion.[1] It appears that it is actually very stressful to construct a world without stressors.[1]

Life and work factors

Urban living reduces life expectancy by 2 years due to crime, traffic, stress and pollution.[3] Adjusting to city life is challenging and is correlated with high blood pressure..[10] Living in a rural and village setting increases life expectancy by 1 year due to less stressful conditions.[3] Rural areas experience little or no cases of hypertension in many areas of the world, while parts of the world with gradual Westernization show a higher rate of hypertension.[10]

Another life factor involved in stress is smoking. Many smokers claim that cigarettes help to calm them when they feel stressed; however, medical and scientific evidence indicates that nicotine dependency is a cause of psychological stress.[12] Stress levels are higher than those of nonsmokers during periods of abstinence, and only when smoking is resumed do smokers' moods and stress levels return to normal.[12] Therefore, smoking seems to be only capable of normalizing the negative emotions and feelings that build up with nicotine dependence.[12] After the initial period of withdrawal when symptoms have passed, quitting leads to a significant reduction in self-reported stress.[12]

Recent research in France looked at the effects of job stress on blood pressure.[11,13] 20% of the workers who reported the highest levels of stress at work showed significantly higher diastolic blood pressure during the work day than those of their coworkers.[11,13] Diastolic blood pressure is the measurement obtained between heart beats; the lower of the two numbers given in a blood pressure measurement. Non-job-related stresses, such as a mental stress test given during the study, did not result in a comparable elevation in blood pressure in this group.[11,13] Blood pressure measurements outside the workplace were similar in all workers. .[11,13] Age, gender, diet, alcohol comsumption, body mass index, and occupation were equivalent between the high-stress and lower-stress groups, so these factors did not account for the variability. In addition, both groups exhibited similar cardiovascular reactivity to stress.[13]

What this research shows is that a worker's individual feelings about their stress levels may actually lead to elevated blood pressure while at work.[11,13] Individuals with the same job, lifestyle, and physical characteristics who don't perceive the job to be stressful do not have elevated blood pressure at work.[11,13]

Rank, society and expectations

We can't consider disease without considering the context of the society of the person or the person's place in that society.[1] Rank generally has very little relevance in the stress response.[1] People are as likely to race against themselves as against some external yardstick. Individuals can belong to a number of different ranking systems and excel in a least one of them. Someone with a mediocre job may be captain of his or her softball league. Expectations make a huge difference in how we perceive certain situations, too. If we expect to win, but lose, we tend to be angry. If we expect to lose and lose, we may be very happy if the game was close.

The only case where rank makes a difference in stress and disease is in the case of poverty.[1] Many studies show that the poor have the highest rate of life stressors and stress-related illness such as heart disease and hypertension. Poverty is also associated with increased risks of respiratory disease, ulcers, rheumatoid disorders, psychiatric disease, and several types of cancer.[1] The prevalence of these diseases is *5-10 times* that of those at the top of the socioeconomic ladder.[1] Studies that control for factors such as smoking, hypertension, and triglyceride levels in the blood, show that these account for less than 1/3 of the variability in the data. Even in studies where people have access to socialized medical systems and receive regular checkups, the poor still get sicker more often.[1]

A recent study compared low and high SES children and teenagers with regard to basal glucocortoids and the processing of positive and negative attributes.[9] It was found that low SES children and teenagers have higher levels of basal glucocortoids and they tend to process both positive and negative attributes in a more

negative way. [9] In addition, this type of mental processing was significantly related to their basal glucocortoid levels at ages 10, 12, and 14.[9]

The poor are generally disenfranchised from society and lack flexible coping strategies and resources to carry out plans.[1] Lack of control and predictability, financial worries, the inability to do stress-reducing activities due to lack of time, money, and social support, and the danger of crime all lead to a highly stressful existence.[1]

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This article and all of our articles are intended for your information and education. We are not experts in the diagnosis and treatment of specific medical or mental problems. When dealing with a severe problem, please consult with a healthcare or mental health professional and research the alternatives available for your particular diagnosis prior to embarking on a treatment plan. You are ultimately responsible for your own health and treatment!

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