

Measuring the impact of stress on physical health



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Psychologists are very interested to understand the many ways in which stress can make us unwell. Before psychologists can get to the point of very significant real-life benefits to be had from understanding this relationship, they need valid and reliable way of measuring stress first. There are two main categories of measurement that has been developed and they are self-report and physiological methods.

One psychological measurement of stress is self-report scales and they include the Social Readjustment Rating Scale (SRRS). The Social Readjustment Rating Scale was developed by Thomas Holmes and Richard Rache in 1967 and is a well-known self-report method of measuring life changes that go on in an individual's life. Both Holmes and Rache studied the medical records of patients, picking out the events that occurred in the patient's lives not long before they fell ill. Within the SRRS, it presents a list of 43 life changes and each one of the 43 stressful life events was given a Life Change Unit (LCU). Obviously this unit depended on how traumatic the event felt to be by a large sample of participants. The researchers calculated averages for each life event and further divided these numbers by ten. This gave the overall LCU score for each change and these changes were put into rank order from highest to lowest.

It was found that if an individual has less than 150 LCU, they have a 30% chance of suffering from stress. Between 150 and 299 LCU, it equates to a 50% chance of suffering from stress, and finally over 300 LCU it means the person has an 80% chance of developing a stress related illness.

The downside of this measurement of stress is that it doesn't take individual difference into consideration. The scale just assumes that each stressor affects people the same way but this is not true, for example some people may say that divorce is very stressful however for others it may even be a relief or amicable.

The Perceived Stress Scale (PSS) is the most commonly used psychological instrument for assessing the perception of stress. Items were made to assess how overloaded, uncontrollable and unpredictable respondents find their lives to be. Also within the scale, it has a number of direct queries about current levels of stress that the person experiences. The questions asked in the (PSS) are about thoughts and feelings during the past month. In each case, people completing it are asked how often they felt a certain way.

Another psychological measurement of stress is the Hassles and Uplifts Scale (HSUP). It is a self-report measure of the stress associated with everyday irritations known as hassles and of the small pleasures of daily life that are thought to partly offset the negative effects of hassles known as the uplifts. It is a more comfortable way to identify the pros and cons events that happen in each person's daily life. Also, Allen Kanner et al put forward that the combined effects of daily hassles and uplifts would be a more useful indicator of stress therefore he then developed this scale.

The HSUP has three different forms:

- Daily Hassles Scale
- Daily Uplifts Scale
- Combined Scale

The Daily Hassle Scale consists of 117 items and includes seven categories which are family, friends, work, environment, chance occurrences, health and practical considerations. Examples of hassles include disliking work colleagues, troublesome neighbours and too much responsibility. The scale measures how severe each hassle is on a three-point scale: somewhat, moderately or extremely severe. Based on the severity measure, it will reflect on the fact that the psychological meaning of each hassle to the individual is more important than how often it occurs.

On the other hand, the Daily Uplifts Scale was constructed by a similar process that consisted of 135 items that were processed from the same content areas as the Hassles Scale. Examples of uplifts include relating well with friends and meeting responsibilities, liking fellow workers, and getting enough sleep. The individual identifies all of the uplifts that apply, followed by how often they have experienced them over a specific period of time. After many years of research with the Hassles and Uplifts Scale, some limitations were identified and so it was updated by Anita DeLongis et al and became the Hassle and Uplifts Questionnaire.

The Skin conductance response (SCR) is a physiological measure of the degree of sweating associated with arousal of the autonomic nervous system. ANS arousal activates the body's fight or flight response when a stressor occurs. Small increases in sweating can be detected as greater electrical conductance across the skin. To detect sweating, electrodes are attached to the index and middle fingers of one hand. A very small current that cannot be felt is applied to the electrodes in order to measure how

much electricity is being conducted. Since human skin is a good conductor of electricity, the more we sweat, the more conductance there will be.

There are two types of skin conductance. One is tonic conductance and this is skin conductance when we are not experiencing a stimulus. It is used as a baseline measure against which to compare phasic conductance. This type occurs when something happens like for example when someone asks you a question or we are shown a picture.

The whole response can take from four to five seconds. Along with respiration, blood pressure and heart rate, the SCR makes up a polygraph, more commonly known as the 'lie detector test'.

Another physiological measurement of stress is by testing the person's blood pressure. Blood pressure is a measure of the force that exerts on the walls of blood vessels. When blood is measured by a sphygmomanometer, two numbers appear like for example 135/85mmHg. The first number, 135, represents the systolic pressure which happens when the heart pushes blood out of the arteries, whereas the second number, 85, represents the diastolic pressure, which is the pressure of the heart at rest.

Salivary alpha-amylase is another physiological way of measuring stress. Alpha-amylase is an enzyme that's made under sympathetic innervations and can be collected in the individual's saliva. There is a lot of evidence suggesting that the level of salivary alpha-amylase increases with physiological stress, such as exercise.