

Stress and Coping

Introduction

The mind and body relationship is an issue that has been acknowledged since ancient times. The mind-brain problem poses the question of whether the mind is no more than a nuisance to our brain processes or whether the mind can, to some extent, influence our behaviour. 'Dualism' is the approach in psychology, which stresses the mind and body as being two existing and interconnected entities. According to one of the first dualists, Descartes, the mind influences the body and not vice versa¹, whereas the 'interactionists' claimed that both the mind and body have influence on one another. Hence, by the means of applying the interactionist point of view, the psychophysiological correlates of stress and illness can be studied. How psychological factors such as stress can lead to psychophysiological effects has been and will continue to be a fundamental topic of research in psychology. It is interesting to investigate the issue of stress and its causes and effects on humans, since stress is copious in our modern society. Therefore this essay intends to deal with following research question: *What do we know about the relationship between stress and physiological illness and can we use that knowledge to cope with stress?*

Stress, according to physicists, stress would simply be defined as '*the pressure or force that is exerted to a body.*'² However, according to psychologists, stress is a more complex factor, which is looked upon in terms of 'the demands it possesses on an organism and how the organism attempts to adapt or cope with the specific demands'³. A definition of stress that has been widely accepted was established by Lazarus and Folkman (1984). According to these researchers, stress is '*a pattern of negative physiological states and psychological responses occurring in situations where individuals perceive threats to their well-being, which they may be unable to meet.*'⁴ Whether stressors are harmful or not depends solely on individuals appraise the stressors and how the mind interprets them (Lazarus, 1975).

It would seem appropriate here to define what is meant by physiological illness. Illness itself is a broad concept, but in general it refers to problems and challenges to the health and well-being of humans⁵. A physiological illness is any illness in which physical symptoms are assumed to be the direct result of psychological or physical factors⁶. Eminent studies conducted by Friedman and Rosenheim (1974), Sweeney (1995) and Cohen et al. (1996) focusing on the relationships between stress and its influence on the weakening of the immune system and on cardiovascular disorders, have led psychologists to establish the concept that there is a clear relationship between stress and physiological illness. Furthermore, studies that measure the efficacy of the methods to cope with stress, as such performed by Holmes and Rahe (1978) and Jacob et al. (1977) have also presented support for the view that, specific coping methods such as: social support, biofeedback, meditation and anti-stress drugs, can reduce the effects of stress and thus

¹ Gross, Richard. *Psychology-The Science of Mind and Behaviour*. Page 872

² Gross, Richard & McIlveen, Rob. *Biopsychology*. Page 169

³ Gross, Richard & McIlveen, Rob. *Biopsychology*. Page 169

⁴ Gross, Richard & McIlveen, Rob. *Biopsychology*. Page 169

⁵ Flemming, Tom. Health Care Information <URL:<http://www-hsl.mcmaster.ca/tomflem/ill.html>>

⁶ Spine-Health <URL: <http://www.spine-health.com>>

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prevent physiological disorders. To determine what we know about the relationship between stress and physiological illness and whether we can use that knowledge to cope with stress, it is firstly important to outline the causes of stress, which include life changes, frustrations, hassles and uplifts of everyday life. Subsequently, the reactions to stress, which encompass both physiological and psychological features, should be explained, since evidence has shown that they lead to physiological illness. Furthermore, in order to counterbalance stress, there are specific coping methods have been suggested and these methods are devised by the means of using the knowledge that is obtained about the stressors and their effects.

What causes stress?

Lazarus' transactional model of stress emphasizes the notion that whether stimuli are stressful or not, depends only on how the individuals appraise them. It is therefore important to describe the causes of stress in terms of potential stressors that are typically perceived as stressors by everyone, and these include stressors such as life changes, frustrations, hassles and uplifts of everyday life. So rather than simply categorizing stressors in groups such as 'philosophical stressors or bio-chemical stressors' we will look into more generalized aspects to the causes of stress. The first main cause of stress is 'life changes'.⁷ Life changes include change in schools, death of a relative, etc. Holmes and Rahe (1967) studied the effects of life changes and investigated whether they are in any way involved in causing stress. The researchers devised a '*Social Readjustment Rating Scale*,' which was aimed to measure severity of stressful changes in a scale from one to a hundred life change units. According to the scale, the death of a family member counted as 100 units, whereas change in school counted as 20 units. A number of studies have shown that those individuals, who had a score over 300 life change units, were more susceptible to have stress related illnesses.⁸ However, the SRRS has been criticized, mainly for the reason that as Lazarus (1975) pointed out that some life changes may be perceived as being more stressful to some people; and since the scale is based on a fixed number of units on certain life changes, the scale does not have a great validity.

Other potential sources of stress that are typically witnessed by almost everyone are 'frustrations' According to Coon (1983), frustration is defined as a 'negative emotional state, which occurs when one is prevented from reaching a certain goal.'⁹ Frustrations typically occur due to some environmental factors that one has usually no control of, such as flight being cancelled, stormy weather, etc. 'Hassles and uplifts of everyday life' can also be classified as potential sources of stress. These sources of stress include hassles such as not being able to hand in an essay, concerns about weight, etc. Finally another source of stress that is worthy to mention is 'work-related stressors.' This source of stress encompasses all the social and environmental conditions at the work place, such as noise, co-worker relationships, but they depend on the nature of the job.

⁷ Gross, Richard. Psychology-The Science of Mind and Behaviour. Page 138

⁸ Gross, Richard. Psychology-The Science of Mind and Behaviour. Page 138

⁹ Gross, Richard. Psychology-The Science of Mind and Behaviour. Page 138

Reactions to stress

Walter Cannon (1927) proposed one of the earliest models of physiological reactions to stress. He acknowledged the sympathetic branch of the Autonomic Nervous System of organisms as being the region that stimulates the adrenal medulla to produce hormones such as adrenaline and nor-adrenaline that are underlying factors in the increases of heart rate, blood flow and sugar levels, and thus preparing the body for emergency by means of triggering the fight-or-flight response. The instinctive response to an external stressor causes the organism either to escape or defend itself from the threatening situations, so in many situations, stress can be very advantageous. The fight-or-flight response was studied in an unethical, yet influential study conducted by Lord, King and Pfister (1976).¹⁰ The researchers found that when animals were given certain chemicals that inhibit the neurotransmitters of the sympathetic branch of functioning optimally, it was quite challenging for the animals to learn to escape from an electric shock. These findings suggest that, if the functions of the sympathetic branch are inhibited, then fight-or-flight response is not activated, even though the situation one is exposed to is life-threatening. Consequences for an organism could be physiological disorders and also psychological disorders, such as 'learned helplessness' as suggested by Seligman (1975).

Another model based on the physiological reactions to stress was suggested by Dr. Hans Selye. According to Selye, stress is the 'non-specific' physiological response of the body to any demands that are made upon it, which means that the body responds to stress in the same way, despite the nature of the external stressor.¹¹ Selye introduced his concept of the body's physiological defense against stress and called it: 'General Adaptation Syndrome,' which consists of three main stages. The first stage is the '*alarm reaction*,' where an individual is exposed to the stressor. This leads to an overall increase in activity of bodily processes, due to the stimulation of the sympathetic branch. If the stressor is not removed, the individual experiences the second stage, which is referred to as the '*resistance stage*.' Here the individual attempts to cope with the stressor and reverse the effects of the alarm reaction.¹² However, if the individual is still exposed to the stressor, then he/she will undergo the most critical stage, known as the '*exhaustion stage*.' During the stage important bodily resources, such as sugars will eventually run out due to the continuous sympathetic-adrenomedullary activity. According to Selye, these are the deficiencies that will be the cause of physiological disorders, which include heart disease, stomach ulcers, asthma or possibly death.¹³

Both Cannon's fight-or-flight model and Selye's general adaptation syndrome only stressed the notion that individuals are merely automatically responding to their external environment, and ignored psychological factors involved in stress and also the view that the individual have the ability to interact with these stressors, rather than

¹⁰ Gross, Richard & McIlveen, Rob. Biopsychology. Page 25

¹¹ Anthony J. Curtis. Health Psychology. Page 129

¹² Ogden, Jane. Health Psychology-A Textbook. Page 232

¹³ Gross, Richard. Psychology-The Science of Mind and Behaviour. Page 142

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passively eliciting the stress response.¹⁴ However, Lazarus' transactional model of stress contradicted this approach and Lazarus (1975) claimed that whether certain stimuli cause stress depends solely on the individual and how they perceive the stressors and that individuals possess the ability to interact with the stressors. He claimed that individuals perceive stressors differently and that some people perceive some stimuli as stressful, whereas others do not and thus took a more psychological aspect to the study of stress. According to Lazarus, whether the individuals perceive certain factors as stressful depended on how they appraised them. In an empirical study performed by Speisman et al. (1964), which was aimed to investigate how participants appraise different situations, participants were shown a film involving an unpleasant genital surgery in three different conditions. The first condition involved the film being shown with a soundtrack that stressed the pain in the surgery, whereas in the second condition, had a soundtrack that emphasized people being happy. And the last condition involved a soundtrack which gave a medical interpretation of the surgery. As assumed by Lazarus' appraisal theory, the most stressful condition was the first condition, which was also known as the trauma condition. These findings suggest that it is not necessarily the events that cause the individual to be stressed, but the way the individuals perceive or appraise the stressors.¹⁵ However, due to the experimental design, there were a few weaknesses in the study, for instance, there participants could have showed demand characteristics and may have acted so as to please the experimenter or simply to spoil the experiment. But in spite of the limitations, this study does to a large extent substantiate Lazarus' appraisal theory.

Does stress cause illness?

To investigate whether stress causes illness, there has been put great emphasis on the role of evolution and how our responses to stress are merely due to instinctive behaviour that our ancestors have passed on. Since we already know from Cannon's and Selye's stress model, that whether one is exposed to internal or external stimuli; the sympathetic branch of the Autonomic Nervous System is always stimulated in a same way, regardless of what the stressor may be. This suggests that even though one is not exposed to a harmful or negative stressor, the body reacts to the stressor with same 'fight/flight' response and thus the mind perceives it as life-threatening. These predetermined responses can be explained in terms of our ancestral history. Since our ancestors were presumably frequently exposed to harsh conditions, where alertness and self-defense were quite necessary, so as to be aware of predators, it is assumed that our nervous and endocrine system have evolved in ways that they react to stressors in the same way as our ancestors did, despite the nature of the stressor. For that reason, our ancestors' adaptive responses have led to be maladaptive responses for us at present,¹⁶ since these innate responses can lead to both physiological and psychological disorders.

Psychoneuroimmunology is a scientific approach focusing on the issue of 'mind over body.' This approach stresses the notion that an individual's psychological state can

¹⁴ Ogden, Jane. Health Psychology-A Textbook. Page 233

¹⁵ Ogden, Jane. Health Psychology-A Textbook. Page 236-237

¹⁶ Gross, Richard. Psychology-The Science of Mind and Behaviour. Page 143

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influence the immune system. The immune system is ‘the body system responsible for resisting disease.’¹⁷ Cohen et al. (1996) studied the effects of stress on the immune system, and asked a group of volunteers to fill out stress- and life- events questionnaires, who were then given nasal drops containing mild cold virus. After taking blood samples from the participants, the researchers found that stress had increased the risks of respiratory illnesses, in ways that there was an overall decrease in resistance to the common cold. Even those participants who felt that they were not stressed, the life events that the researchers claimed as stressful, showed an increased vulnerability to the common cold.¹⁸

Furthermore, another study that corroborates the assumption that stress has a remarkable effect on the functioning of the immune system was reported by Sweeney (1995). The purpose of the study was to verify whether stress had any effects on the time taken for wounds to heal. In the study, two groups of participants agreed to take part in an experiment, where they were to have a small skin biopsy on their arms. After the biopsy, one of the groups was exposed to stressful conditions, whereas the other group was not. As assumed by the researchers, they discovered that it took approximately nine days more for the wounds of the stressed group to heal, when compared to the non-stressed group. This implies that the stress had negative effects on the participants’ immune system, since the healing of their wounds had slowed down. By using these two studies conducted by Cohen et al and Sweeney, it can be stated that there is a relationship between stress and the functioning of the immune-system and this causes an individual to be more susceptible to become ill, since the body’s internal defense mechanisms are not functioning optimally. However, since there is use of the correlational research in these two studies, there are a few limitations, such as, there cannot be established a definite conclusion about the cause and effect relationships and it is quite difficult to control extraneous variables, which could have influence on the results. And since the two studies are case studies, as in they are conducted on a small sample of people, the results can therefore not be generalized to the rest of the population.¹⁹ In addition it is not possible to replicate the studies, which makes it difficult to check the reliability of the results.

Another way to investigate whether stress causes physiological illness, there have been conducted studies investigating the relationship between stress and cardiovascular disorders. This was done in a longitudinal case-study progressed by Friedman and Rosenheim (1974).²⁰ The study took place over a period of nine years and the researchers aimed to investigate whether the stress had any influence on cardiovascular disorders and whether the differences in personality of individuals played any role in determining whom are more likely to develop these cardiovascular disorders. A large sample consisting of several thousand physically healthy men between 39 to 59 years of age were used and they were categorized by the researchers as ‘Type A’ or ‘Type B,’ depending on their eating habits and how they dealt with stressful conditions. Type A personalities

¹⁷ Kent, Michael. Advanced Biology. Page 326

¹⁸ Gross, Richard. Psychology-The Science of Mind and Behaviour. Page 145

¹⁹ Searle, Ann. Introducing Research and Data in Psychology. Page 35

²⁰ Gross, Richard & McIlveen, Rob. Biopsychology. Page 173

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tended to be competitive, time-conscious, short-tempered, constantly striving for achievement and were recognized as maintaining high-levels of stress. On the contrary, Type B personalities tended to be more easy-going, relaxed, more understanding and less stressed. The researchers found that nine years after the study had begun, 257 men died and 70% of them were members of the Type A category. These findings suggest that there are distinct correlations between stress and cardiovascular illness and that an individual's personality type has an influence on whether one developed these cardiovascular disorders. However, this study has been criticized by many psychologists, such as Ragland & Brand (1988), since they have been unable to get the same results as the ones suggested by Friedman and Rosenheim. And once again there is the use of correlational research, which has its disadvantages.

It is also important to mention, that it has been suggested that there is also an indirect way in which stress can through general behaviours of people cause illness. According to Wiebe and McCallum (1986), high levels of stress cause people to adapt unhealthy behaviour, which could eventually lead to illness.²¹ These behaviours include excessive consumption of alcohol, coffee or cigarettes and lack of exercise, where the consequences can thus include breast cancer, damage of the liver, etc. So therefore it can be stated that stress has both a direct and indirect link to physiological illnesses.

If we know the possible causes and effects of stress, it can therefore be exceptionally advantageous to apply this knowledge to devise or learn methods that could possibly help to cope with the stress. Coping refers to the attitudes and behaviors that one uses to maintain ones emotional well-being and to adjust to the consequences of stress. To cope with stress can be exceedingly beneficial and in some situations, even life saving and some of these potential coping strategies that have shown to be quite beneficial include: social support, meditation, biofeedback and drugs. Cohen and Lazarus (1979) have generalized the coping strategies that a person may use in order to reduce stress into five main categories.²² The first main coping strategies are referred to as the '*direct action responses*,' where the individuals change their attitudes towards the stressors and attempt to either defend themselves against it or simply flee from it. The next strategy involves the individual trying to understand the stressful situation better, which is termed as '*information seeking*.' Another coping strategy involves the individual simply not taking any action and is known as the '*inhibition of action*.' The fourth strategy is termed as '*palliative coping*,' where the individuals change their internal environment by using drugs, alcohol or simply by using relaxation techniques. The last coping strategy is '*turning to others*' for emotional support or simply to get things of one's chest, also known as 'catharsis.'

'Turning to others' is believed to be a useful natural stress coping technique, since it does not require any drugs or prolonged therapy sessions. According to Brown and Harris (1978), individuals who know that they have social support, tend to have less physiological stress effects, whereas those whom perceive that they have no support are

²¹ Ogden, Jane. Health Psychology-A Textbook. Page 241

²² Gross, Richard. Psychology-The Science of Mind and Behaviour. Page 148

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more likely to be affected by stress²³. In a cross-cultural study reported by Marmot and Syme (1976),²⁴ the differences in American and Japanese cultures were being studied and its aim was to verify whether the social differences were the cause for any differences in health. Some of the fundamental differences in the two cultures were that the Japanese culture emphasizes good relations with others, good interpersonal skills and value social interaction more than the American culture. To verify the effects of these differences, Marmot and Syme compared the Japanese who lived in California, whom had assimilated quite well into the American lifestyle, with native Japanese. It was found that even though the individuals being studied had similar diets, the Japanese living in California had a higher rate of coronary disease. These findings suggest that there are considerable differences between the two cultures, since the Japanese are recognized as being less stressed, and hence stress has less effect on their health. Therefore social contact has been shown to be a useful tool to cope with stress.

However, according to Wheatley (1997) there are certain factors that can inhibit the effects of the natural coping methods of stress, such as depression.²⁵ Therefore the use of anti-stress drugs can be beneficial, since it can instantaneously relieve depression. There are a range of drugs, but the ones that are most effective act on the sympathetic branch of the nervous system and inhibit its functions. However, the use of drugs to cope with stress, according to Lazarus is ineffective in the long run. Since Lazarus emphasized that whether some factors were stressful depended on how the individuals appraised them and the way individuals can cope with them is to learn to appraise them in positive ways. So the use of drugs can merely alleviate physiological symptoms and not abolish them. Furthermore, there are many harmful side-effects that accompany the use of drugs. An alternative biological technique that is known to reduce stress is 'Biofeedback.' It works in the way that the individuals are given information about their own internal physiological states and bodily processes such as heart rate and blood pressure, by the means of using biofeedback machine. Biofeedback has been shown to be beneficial in relieving stress related physiological and psychological symptoms, however there are some disadvantages with this therapeutic method, because it typically takes a long period of time, before any beneficial effects occur.²⁶

Western scientists refer to breathing techniques as relaxation therapy and found that it is very effective in reducing pain and stress. There are different forms of relaxation, including breathing exercises, progressive relaxation, meditation and yoga. To relax is to '*rest deeply*,' where there are no physical movements and the mind is clear and in a state of tranquility. Jacob et al (1977)²⁷ found that both progressive relaxation and meditation have shown to be quite beneficial in reducing blood pressure, which is a great cause for many illnesses. However according to Green et al. (1994), progressive relaxation is only beneficial if it is practiced regularly, therefore in the short term is not as

²³ Hill, Graham. Oxford Revision Guides-A' level Psychology. Page 262

²⁴ Marmot and Syme. (1976). American Journal-Epidemiology. Vol.104. Page 225-247.

²⁵ Wheatley, David. (1997) Stress Medicine. Vol. 13. Page 173-177

²⁶ Gross, Richard & McIlveen, Rob. Biopsychology Page 175

²⁷ Gross, Richard & McIlveen, Rob. Biopsychology. Page 175

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effective as the other coping techniques.²⁸

Recent research has shown that women cope differently with stress than men. After analyzing data based on numerous behavioural studies of humans and animals, researchers from UCLA concluded that women cope with stress by the means performing behaviour that results in the protection of oneself and one's children. This is more commonly known as the 'Tending and Befriending' coping method, which are assumed to be evolutionary responses, that our ancestors have passed on. Tending refers to the taking care of oneself and others, and befriending refers to creating social networks, so as to reduce stress, by the means of 'social support.' On the other hand, it is suggested that men respond to the stressor by expressing the fight-or-flight response and either confront the stressor or flee from it. To substantiate these assumptions, a study reported by Repetti and Wood (1997)²⁹ suggested that, mothers are particularly caring and loving to their children, when they experience high levels of stress at work, which stresses the nurturing response. Furthermore, in another study conducted by Repetti (1992)³⁰, it was found that men who experience high levels of stress at work, they tend to keep themselves away from home, and thus expressing the 'flight' response. These findings suggest that women cope with stress differently than men and therefore it can be stated that there are, to some extent, gender differences in the ways of coping with stress between male and females.

Despite the limitations and weaknesses of the empirical studies conducted by Friedman and Rosenheim (1974), Sweeney (1995) and Cohen et al. (1996), it can be stated that there is a clear link between stress and physiological illnesses, in terms its influence on the weakening of the immune system and on cardiovascular disorders and also indirectly by the means of performing unhealthy behaviours.³¹ According to Frese (1985), stress is involved in almost 50-70% of all physical illnesses.³² This statement gives a concrete account of the relationship between stress and physiological illnesses. These findings also substantiate the 'interactionist viewpoint,' since it has been shown that the mind and body both influence each other. From the studies reported by Friedman and Rosenheim (1974) on personality, Repetti and Wood (1997) on gender differences and Marmot and Syme (1976) on cultural background, it can be acknowledged that stress is universal. However there are remarkable differences in how individuals with different cultures, personalities and gender are affected by stress and how they tend to cope with it. Some coping methods require practice and long procedures, whereas others work instantaneously. The coping methods that have been developed have shown to quite effective in reducing stress, but however this depends on the type of stressor that is involved. So the only point where we will be totally stress-free is perhaps when we die, therefore it is especially important to learn how to cope with stress, since stress is copious in our modern society.

²⁸ Gross, Richard & McIlveen, Rob. Biopsychology. Page 175

²⁹ Repetti, R.L. & Wood, J. (1997). Journal of Family Psychology. Vol. 11. Pages: 90-108.

³⁰ Repetti, R. L. (1992). Hostility, Coping, and Health. Pages: 151-165

³¹ As suggested by Wiebe and McCallum (1986)

³² Gross, Richard & McIlveen, Rob. Biopsychology. Page 175

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