# The Role of Stress in Human's Habits

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Thesis: Stress, which is an integral part of daily life, has an undeniable effect on people's habits in the form of addiction, aggression and learning.

I. Addiction

A. Behavioural

1. Social Media

a. Rapid arousal

b. The Influence of Stress on Internet Addiction: Mediating Effects of Self-Control and Mindfulness (Song & Park, 2019)

2. Gambling

a. Stress and gambling (Buchanan, McMullin, Baxley & Weinstock, 2019)

B. Substance

1. Reward System

a. Emotional States

b. Non-pharmacological factors that determine drug use and addiction (Ahmed, Badiani, Miczek & Müller, 2020)

2. Chemical System

a. A Role for Brain Stress Systems in Addiction (Koob, 2008)

b. How does stress increase risk of drug abuse and relapse? (Sinha, 2000)

II. Aggression

A. Biological Basis

1. Neural interaction

a. Interactions between the neural regulation of stress and aggression (Summers et al., 2006)

2. Hormonal interaction

a. Stress hormones and implications for aggression (De Kloet et al., 2020)

B. Social Basis

1. Personal characteristics

a. Personal variables in aggression (Geen & R. G., 1998)

2. Social relationships

a. Workplace and media pressure (Dupré et al., 2006)

b. Family life

III. Learning

A. Improve learning performance

1. Strengthening memory

a. Stress around the time of learning (Vogel & Schwabe, 2016)

b. Stress and related context (Vogel & Schwabe, 2016)

2. Strengthening Attention

a. Stress based biological changes improving attention (Joels, Pu, Wiegert, Oitzl & Krugers, 2006)

b. Effects of stress to students' learning performance (Shankar & Park, 2016)

B. Impair learning performance

1. Weakened memory

a. Stress considerable time before and after learning(Joels, Pu, Wiegert, Oitzl & Krugers, 2006)

b. Stress and its relation to an unrelated context (Joels, Pu, Wiegert, Oitzl & Krugers, 2006)

2. Distraction

a. Stress based biological changes causing distraction

b. Experiment carried out in Ruhr-University (Schwabe & Wolf, 2009)

Can mushrooms have stress? This question may seem a little bit weird but with the development of biological observation technologies, it is known that from bacterias to plants, viruses to mammals, every living creature in the world faces stress. In old Greek, philosophers like Aristotle and Hippocrates were mindful of stress and its antagonistic impacts on living life forms and since at that point humankind have been searching into subtle elements of the stress concept (Fink, 2009, p. 549). Hans Selye was the first person to use the term “stress” in a biological context. He defined stress as "the non-specific response of the body to any demand placed upon it" (Fink, 2009, p. 551). Since then, thousands of studies have been done on this topic and today humankind is still learning new information about stress and its effects on everyday life. Stress, which manifests itself as a fight and flight response for simple creatures, leads to more complex reactions as the structure of the living thing becomes more complex. The term stress as used in intelligent life forms fall under the scope of behavioral sciences. Behaviours, which are already complex due to their nature, become more complicated by biological influences. Therefore, stress, which is an integral part of daily life, has an undeniable effect on people’s habits in the form of addiction, aggression and learning.

The first type of schematic behavior whose relevance to stress will be examined in this article is addiction. The first reaction of living things to stress situations is to get away. This is the first reaction of a human being, a developed species, to psychological stress. Since it is not so easy to escape from psychological stress, some defense mechanisms are developed. Some of these mechanisms are ineffective or even harmful. One of the ineffective coping strategies is addictions. According to the clinical studies of Saikia, Das, Barman, and Bharali there is a very strong relationship between stress, anxiety, and addiction ($P < 0.0001$)(2019, p.6). The first and more common of these addictions are behavioral addictions such as internet and gambling addiction. Grant, Potenza, Weinstein, and Gorelick

stated that although it is known that some behaviors that give short-term reward about the formation of behavioral addictions have negative consequences, they turn into addiction by reducing people's control over their behavior (2010, p.5). The increase in social media use is one of the most important stress-related addictive behaviors due to its rapid stimulation and easy accessibility. The policies of social media companies to disrupt this reward mechanism strengthen this dependency relationship. Subjected to a constant bombardment of rewards, the stressed person develops addiction to these rewards due to their already vulnerable state. This activity, which should reduce stress, turns into a self-feeding state. In addition, reduced physical activity in the case of stress leads to reward hunger and turns into a factor that pushes the person to behavioral addictions such as social media or gambling.Brailovskaia, Teismann and Margraf have shown a strong negative effect between chronic stress and physical activity in their research. T1: r 1⁄4 0.310, p <.01; T2: r 1⁄4 0.124, p> .05. The same research also found a strong link between physical activity and FAD (Facebook Addiction Disorder) (p <.05) (2010, p.201). Gambling addiction, like social media addiction, is a behavioral disorder that can develop due to stress. Stress has a triggering role in gambling addiction. Almost 50% of individuals with gambling disorders who undergo cognitive behavioral therapy identify negative emotional states such as stress as a powerful trigger for gambling (Morasco, Weinstock, Ledgerwood, Petry, 2006, p.3).These behavioral disorders caused by stress are not always interpreted as bad. Some are wars against stress, as in the case of gambling, and are seen by some doctors as more promising behaviors than carelessness to stress. Behavioral addictions are a means of directing the psychological difficulty caused by stress to a channel, even if it is wrong. This means that a more careful study of the relationship between stress and addiction can be a guide to combating stress. Considering all these, it is seen that stress has both direct and indirect effects on behavioral addictions.

The impact of stress is not limited to behavioral addictions. It also leads to drug addiction, which can be said to have more serious consequences than behavioral addictions. Stress and drug addiction should be examined on two basic premises. The first of these premises is the impairment of reward perception, as in behavioral addiction. The second is the interaction of stress and the effects of drugs on brain chemistry. The impact of impaired reward perception is more critical than in behavioral addictions because the reward that is replaced is much stronger and physical. The desire to seek reward caused by stress is strongly met by drugs. However, studies have shown that drug withdrawal also causes stress and follows a cyclical path. Koob, in his studies on animals, showed the relationship between the increase in anxiety-like behaviors after drug withdrawal in animals with a history of addiction and the disruption of the reward system (2008, p.3).This shows the consequential relationship between stress and substance abuse. Additionally, the deterioration of the perception of reward and the increased stress make people more vulnerable to the satisfaction of drugs. Therefore, stress can strengthen the effectiveness of drugs, especially in those vulnerable to drug use, by making brain reward systems "primary" (Sinha, as cited Piazza & Le Moal, 1998, p.4 ). Drug use motivation, which has become the primary action, is one of the most precise associations of stress with addiction and is a schematic behavioral pattern that is difficult to break. Other than that, similar to other genetic diseases, drug addiction worsens over time and, if healed, may reappear months or even years later. This is evidence that points to addiction causes outside of emotional states. Koob and Moal stated that this nature of drug addiction has led to the evaluation of drug addiction as more than just an imbalance of emotional function (2001, p.17). Therefore, the chemical effects of drug addiction and stress on the brain should also be examined as well. Changes in brain chemistry often caused by chronic stress accompany the changes caused by drug use. It can cause repetitive behavior in situations where there are various deficiencies in the brain developed to react quickly.

Corticotropin-releasing hormone is one such structure. This hormone secreted in stress situations cuts appetite and increases attention. This hormone, produced in the enlarged amygdala, can also cause repetitive behavior. As Koob points out, stress systems in the extended amygdala may be one of the important components of bad emotional states that trigger drug addiction and may be compatible with the bad emotional components of other psychopathologies (2009, p.14). So, some systems that the body develops to protect from stress or to normalize it can trigger addiction. Once triggered, addictive behavior can also turn into a repetitive behavior due to the stress factor. What this information shows is that stress is linked to drug addiction through both chemical and emotional states.

The second undeniable effect of stress on human habits is aggression. To begin with, stress related aggression especially occurs under biological basis. There are two main branches of aggression, and the first of them is the biological basis that underlies the link between stress related aggression and neural interaction. There are neural interactions between behaviour and emotions not only in humans but also in most organisms. One of the important sub-branches of neural interaction is neural regulation of stress and aggression relationships. Stimuli from the social environment create an impact force on nerves and chemicals, and it is necessary to mention the presence of reaction where the effect is. This is where neural interaction comes into play and connects these two phenomena. As Summers (2006) stated that the pattern of neurochemical and hormonal occasions animated by social connection clarify that unpretentious contrasts in this pattern of reaction recognize social status. For instance, the synapse serotonin (5-HT) reacts quickly to stress, and furthermore seems to assume the main job for inhibitory guideline of stressful communications (p. 4581). This shows that, as with many emotions, there is a neural interaction between stress, neural system and aggression. The second biological basis of stress related aggression is hormonal interaction, which is relatively slow and prolonged compared to neural interaction. Kloet et

al. (2020) stated it is for the most part acknowledged that aggressive conduct is a particular component of a more broadly example of stress responses shown by creature and human reaction to a changing climate (p. 179). They also stated that information gathered from studies with SAL and LAL mice show that low corticosteroid hormone input and high limbic 5-HT1A receptor output are selected together in genetic determination for aggressive behavior (p. 181). In addition to corticosteroid hormone, serotonin plays a role in the hormonal relationship between stress and aggression. Serotonin is a hormone that pumps happiness, it appears as a neurotransmitter between nerves and is seen in the stress-aggression relationship though the nervous system, intercalary, when serotonin evaluated alone, its deficiency leads to stress and depression. These show that hormones, especially corticosteroid and serotonin, are involved in the link between stress and aggressiveness as well as neural transmission but for a longer period of time. As studies show, stress formation in organisms, especially among human beings and animals, occurs biologically which are neurally and hormonally based.

Besides the biological basis, the aggression that occurs under stress is also based on social factors. When examined on a social basis, aggression due to stress is divided into two main branches. The first of these branches is personal characteristics. If evaluated on the human, aggressiveness due to stress, like all emotions and psychological moods, depends on the character of the person. Not every person has the same tolerance to stress and they react to different situations with different levels of stress. As Geen (1998) stated, most researchers would presumably concur that men are naturally more aggressive than ladies (e.g., Reinisch and Sanders, 1986), yet the reasons for this impact are conditions and the idea of the intellectual and emotional cycles (pp. 7-8). Based on this information, gender and characteristics influence stress and aggression levels in human beings. The second main branch of social basis of stress related aggression is social relationships. The working

environment, public places, family and relative relations, friendships, entertainment culture and entertainment areas determine the social environment of people. All these areas and relationships have a role in the short and long-term emotional life of the person. Negative impacts can cause stress and lead people to aggressive behaviour. For example, in the workplace, the responsibilities imposed, limited time and the bad colleagues cause a negative effect on people. NIOSH (2003) stated that between 1992 and 2000, 63% of working environment fatalities including U.S. retail specialists beneath the age of 18 were due to attacks and other savage acts (Dupré et al., 2006, p. 987). Based on this information, when stress and tension in the workplace manifest itself as aggression, it can lead to violence and unpleasant consequences. Furthermore, individuals may be in problematic communication and interaction with their families, where they spend most of their lives together, in addition to their business life. The human body responds to domestic tension that develops over time or instantly with stress and worst can lead to domestic violence according to aggression. For example, a conflict within the family arising from the child's failure in education can cause stress and aggression in the parents. In this context, it can be said that family problems are effective in the development of stress related aggressiveness. As a result, the development of stress related aggression has a social basis which is observed in workplace and family life, as well as its biological basis.

The final habit which is affected by stress is learning. Unlike the other habits mentioned in the paragraph, stress does not only have a negative effect on people's learning performance, it has good impacts too. To begin with, stress plays a very crucial role in strengthening memory. Since the dawn of humanity, learning new things has been the cornerstone of development. For a person to learn something, first he/she has to comprehend the topic and keep the topic in the memory. With a weak memory, the things that are learned will not be permanent. As known, for hundreds of years humanity has found methods to

strengthen memory such as eating helpful nutrients and doing exercises but they were missing the natural, yet crucial supplement, stress. Under the right conditions, stress has a very important impact on memory. For example, stress affects memory in relation to time, it has a memory-boosting effect during stressful events (Vogel & Schwabe, 2016, p. 2). As indicated above, since people who have gone through a really bad incident experienced a great deal of stress, they remember the details of that incident perfectly. Additionally, stress strengthens memory if the subject learned during learning is related to a topic causing stress (Vogel & Schwabe, 2016, p. 6). In view of this information, it can be said that if a person afraids of the consequences of not learning a topic, the stress that person faces improves his/her memory in the process. Furthermore, in the right conditions, stress is one of the most successful elements in strengthening attention. This might sound a little bit absurd but the hormonal activity due to stress causes changes in our brain. For instance, it has been discovered that both Noradrenaline and CRH strengthen the synaptic connections in the hippocampus. (Joels, Pu, Wiegert, Oitzl & Krugers, 2006, p. 155). In this view of information, it can be inferred that some hormones increase people's attention level since they strengthen synaptic contacts. Moreover, students might be the most stressed group in humanity due to exams, tight deadlines and interpersonal conflicts. Students are constantly learning new topics which later they will be questioned. Based on the findings of Shankar and Park, adding stress causing emotional material while students learn new information, enhances their attention and helps them to comprehend the topic easily (2016, p 7). Taking this fact into account, it is clear that stress is effective on attention if managed correctly. All things considered, contrary to popular belief, stress is helpful in strengthening the memory and attention if the conditions are right.

Furthermore, other than some exceptional situations as mentioned above, stress mostly affects learning performance negatively. Compared to other human habits, learning a

topic is very complicated. The learning process which is difficult by its nature, becomes more complex under both internal and external factors. To begin with, stress is one of the factors that weakens memory the most. From white collar workers to students, writers to researchers, learning new topics everyday is so crucial for their success. Not being able to deliver presentations in time, fear of failure in exams, these kinds of pressures cause stress and due to stress, they have difficulty remembering necessary topics. One can see the mentioned effect clearly in particular scenarios. For example, stress negatively affects learning performance when high amounts are present in the body long before or after the learning process(15 minutes or 1 hour respectively) (Joels, Pu, Wiegert, Oitzl & Krugers, 2006, p. 154). Taking this into consideration, it can be concluded that stress affects memory in relation to time. Additionally, if the source of stress is irrelevant to the activity, it again weakens memory. For instance, rats trained to find a hidden platform in a Morris water maze using spatial cues showed elevated stress levels below a certain water temperature and it has been observed that the memory performance of rats is weakened as the water temperature decreases (Joels, Pu, Wiegert, Oitzl & Krugers, 2006, p. 153). Thus, it can be understood that any unrelated external factor impairs memory performance. Moreover, stress does not only have a negative effect on memory, it also causes distraction. Being concentrated in the learning process, isolating yourself from that moment, integrating with the subject is very important in terms of learning performance. Hormonal changes due to stress may cause distraction. For example, Adrenaline elevates your heart rate, increases your blood pressure, Cortisol changes immune system replies and prevents the digestive system from working, the reproductive system and growth processes. Prolonged exposure to stress hormones can derange almost all your body's processes such as concentration. Additionally, in an experiment called Socially Evaluated Cold Pressor Test (SECPT) conducted with 8 men and 16 women at the Ruhr University, some of the participants' wrists were immersed in 0-2 degrees of water, while the wrists of

the rest were immersed in 35-37 degrees of warm water. During this experiment, it was observed that the participants who were exposed to cold water had attention problems in the word memorization part (Schwabe & Wolf, 2009, p. 185). In view of this information, it can be claimed that any unnaturally extreme external factor can cause distraction. To conclude, exposure to a large amount of negative external factors causes a serious decrease in people's learning performance.

In conclusion, stress has a significant impact on people's daily life habits such as addiction, aggression and learning. First of all, there is a relationship between stress and addiction that cannot be ignored. Although this relationship, which causes both substance and behavioral addictions, is generally due to the biological and physiological addictive nature of stress, it is seen that it is also used as a form in the fight against addiction. In addition, stress can have an effect on living things resulting in aggressiveness. When the relationship between stress and aggression is examined on a biological and social basis, it can be observed that living things directly or indirectly attribute stress to aggressiveness in these two different mechanisms. Finally, stress can affect people's learning performance in a positive way if the conditions are right such as being exposed to stress at the time of learning and stress being related to the subject learned since it strengthens memory and attention. However, being exposed to stress at a different time than the moment of learning and stress being irrelevant to the subject learned might cause an impairing effect on memory and cause distraction. Considering all these reasons, with some exceptions, stress negatively affects human habits. In the future, it seems inevitable to develop biological and psychological methods to prevent the negative effects of stress. Therefore, at the moment, individuals should be mindful of the possible effects of stress on their habits. Further research into effects of stress on people's habits is highly recommended to understand the relation between stress and people and its consequences.

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