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Impact of Stress and Anxiety on Cognitive Performance

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KEYWORD

Cognitive Performance; Recovery Model; Third Party

ABSTRACT

Anxiety and stress are common emotions that anyone may experience throughout their lives. These feelings typically diminish quickly once the underlying trigger is addressed. However, they can also manifest as feeling of fear, worry, and unease without specific or immediate reason. On a cognitive level, stress and anxiety can negatively impact attention, memory, decision-making, and problem-solving skills. Furthermore, anxiety-induced rumination and worry occupy working memory resources. Although mild stress can occasionally be helpful, increased and prolonged stress and anxiety typically negatively affect cognitive functioning by interfering with neural processes and diverting cognitive resources.

1. Introduction

Stress is understood to be a person's physical, mental, and emotional reaction to some kind of stressor/stressful situation. Stressors can be work related, finances, family related, or of a different nature altogether. In fact, any unpleasant or odd situation can cause stress, even insignificant events like moving to a new city, coming to a new college or school, or meeting new people. For others, even ordering food can be a stressful situation. The stress from these events and situations could present as psychological disorders like anxiety, distracting anxiety, worrying, sleep disturbances, impatience, anger, and/or sadness. Some common signs of stress include headaches, nausea and/or vomiting, chest pain, elevated blood pressure, flushing and/or numbing, shortness of breath, expository distress, choking feelings, and/or restlessness. Stress can occur in eustress, acute stress, and chronic stress. After talking about stress, we should talk about anxiety, another significant part of being human. Stress is the primary cause of any anxiety disorder. The word anxiety comes from its Latin meaning, anxieties (to choke, trouble, and upset). When in moderation, anxiety can produce an anticipatory and adaptive response to more stressful or taxing situations and events. Furthermore, culture informs how symptoms presented, the discussion of illness, and the pursuit of treatment. Stress and anxiety can detract from the task or activity, and can be a barrier to task completion. Worry and intuitive thinking takes up much of the mental capacity that could be used towards concentration. The works of eustress and distress are widely used in the scientific literature [1]. As of February 2020, 203 items inCan

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one turn into the other. Stress and anxiety, although not inherently the same, share many common symptoms. The difference is that stress is the response to a situation, while anxiety is a reaction to that stress. Anxiety may have the same symptoms of stress as outlined above and/or include persistent intrusive thoughts, unrelenting feelings of worry, fear, panic attacks, or other physical symptoms[2]. While the causes of anxiety are complicated and unique to each person, there tend to be many common triggers. When stress becomes chronic, the body's stress response system remains activated. This can lead to persistent feeling of worry and fear, which are marks of anxiety. Both share very similar symptoms, suchas:, Difficulty sleeping, muscle tension, difficult concentrating. Also increase a person's vulnerability to developing an anxiety disorder. In essence, while stress is a reaction to a specific trigger, anxiety can linger even after the trigger is gone [3].

2. Literature Review

This section presents a review of the literature examined and provides theories and models of information seeking behaviour about related between stress and anxiety at some points. Stress and anxiety have been shown to significantly impact cogitative functioning, particularly in areas such as problems-solving, memory, and attention. Chronic stress can lead to cognitive declines and stress in late adulthood. Moreover, stress and lead to cognitive impairment by promoting rigid thinking and poor decision-making. Excessive worry and multitasking behaviour can also contribute to cognitive stress, which can further exacerbate anxiety and stress levels [12]. Additional, physical symptoms such as headaches and gastrointestinal issues can arise as a result of stress [13].

There have been many studies (Schafer,1996; fisher,1994; Alhmaier, 1983; Greenbery & Vallefutti, 1980). These reported strong relationship between stress in college students and there are some common stressors Imagine a young person entering the halls of learning. They carry not just books but the hopes of their families, the dreams they hold for themselves, and the weight of a world that seems to measure worth by grades and achievements. The pressure they feel isn't just about tests and essays; its about belonging, about providing their value, about navigating a system that often prioritizes outcomes over individual growth. They yearn for connection, for understanding for the space to explore their passions without the constant fear of falling short. Their anxieties aren't just academic; they're existential rooted in the fundamental human need for acceptance and purpose. They crave a learning environment that nurtures their journey. They need to know that their worth isn't defined by a letter grade but by the richness of their character the depth of their empathy and the courage to pursue their own path [4]. They are, after all, more than just students; they are individuals, deserving of compassion, support, and the freedom to flourish [5]. The causes of stress in college students are like, academic pressure such as exam, assignments and maintaining good grades. And they have to deal with social adjustment. Building new friendships & navigating social dynamics. Loneliness & isolation. Time management becomes hard to deal with balancing academic social and heavy workload. And independence some types living away from home for the first time [6]. Managing daily responsibilities future stresses like worrying about finding a job after graduation. Some common stresses are- "sleep disturbance, changes in eating habits, difficulty concentration, physical health problems mental health issues like depression, anxiety disorders" [9].

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3. METHODOLOGY

3.1. Data collection-

This study starts with the role of stress and upcoming anxiety with stress in a normal human body so to measure all those issues use the method of a questionnaire form to fill out the questions and then measures the outcomes of people aged 15 to 25. We collected the data through an online questionnaire where people were asked to fill it out at their convenient time and place and send their responses [10]. Written consent was mentioned at the start of the questionnaire [11]. There was an option to leave questions unanswered if it was too hard to answer, along with a few more facilities. The given questionnaire was divided into four sections: the first section inquired about age and included multiple questions like gender, qualification, and occupation, etc. The remaining sections 3 included 10 questions [7].

Participants rated each item on 5-points likert scale (0=never, 1=almost, 2=sometimes, 3=often, 4=very often). Participant can fill the questionnaire online/offline. This survey took approximately takes some days to through all the people or so to complete.

3.2. Limitations

A small size of sample can't be accurate to the population, leading to biased results. And the cross-section will only show the co-relation between things. And longitudinal studies that will be time-consuming and expensive. Also many studies only pick a few circle of people like (college/school students), which might not represent the general population. Some cultural factors can also influence stress/anxiety levels and there are not usually seen and controlled.

In a simple term it's not possible to real stress in a lab. And measuring stress or anxiety is difficult because its subjective. Its hard to study stress and brainpower because everyone's different and brainpower is complicated and all the studies have limitations. We can learn few points but the answers can't be always perfect. The form does not ask any specific stressors that may contributes to stress levels and the scale result may not provide a understanding of the individual's stress sources [9].

4. RESULTS AND DISCUSSION

The study examined the self-reported stress levels of participants using a likert scale. The following results present the distribution of responses across the defined categories of low, mild and high stress. And the data is in the form of bar graph which is given.

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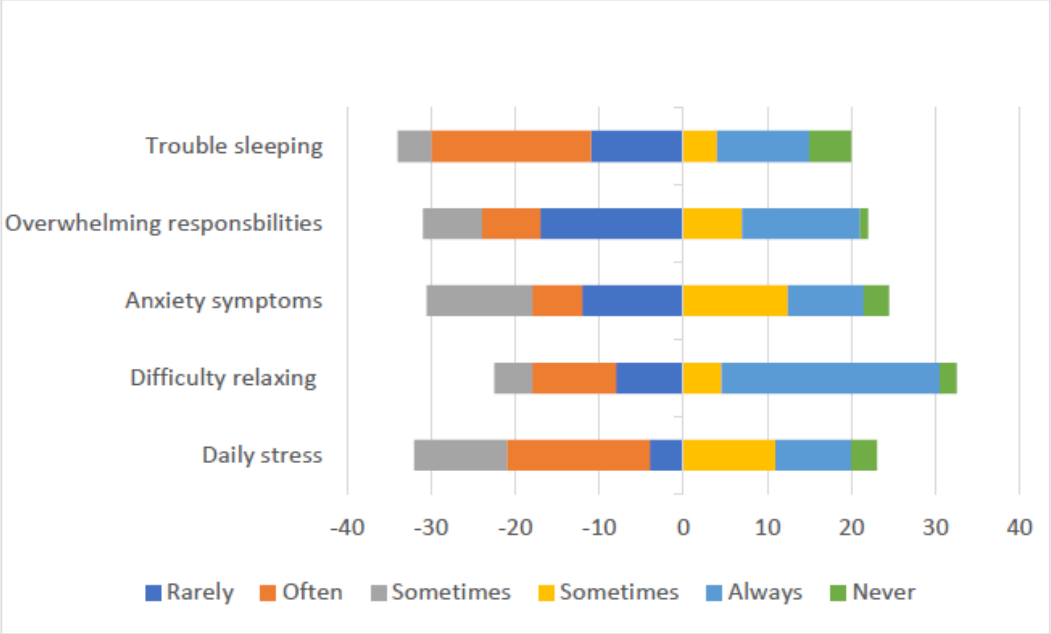

Figure-1: Predominantly high impact of basic stress symptoms, such as trouble sleeping

In the given table it shows how "high, mild and low" works in data.
The study shows that people have higher chances of trouble sleeping under anxiety: High
The study shows that possibility of feeling overwhelmed is also high: High
The study shows that the amount of anxiety symptoms is higher too: High
The study shows during stress relaxing is difficult too: High
The study shows overall daily stress is also high: High

Numerical scale:
The scale given (-40 to 40) likely represents the relative frequency or percentage of responses within each category. Higher positive number indicate higher frequency.

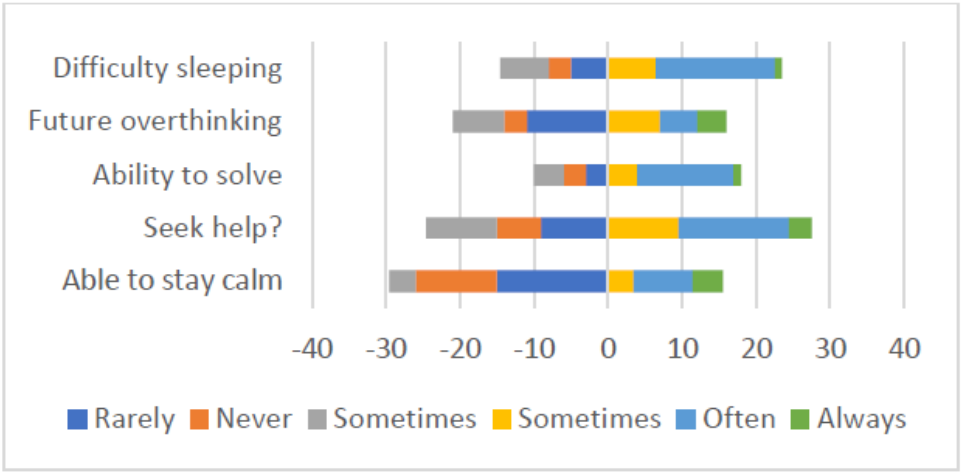

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Figure-2: Own ways of measuring stress in the group highlighting high impact of every given question and it has its own responses

High mild and low impact
The study shows that difficulty in sleeping has higher chances in people: High
The study shows that thinking about future also has higher chances: High
The study shows the ability to solve problems has lower chances: Low
The study shows that people usually seek help when they needed: High
The study shows staying calm is not what everyone likes to do: Mild

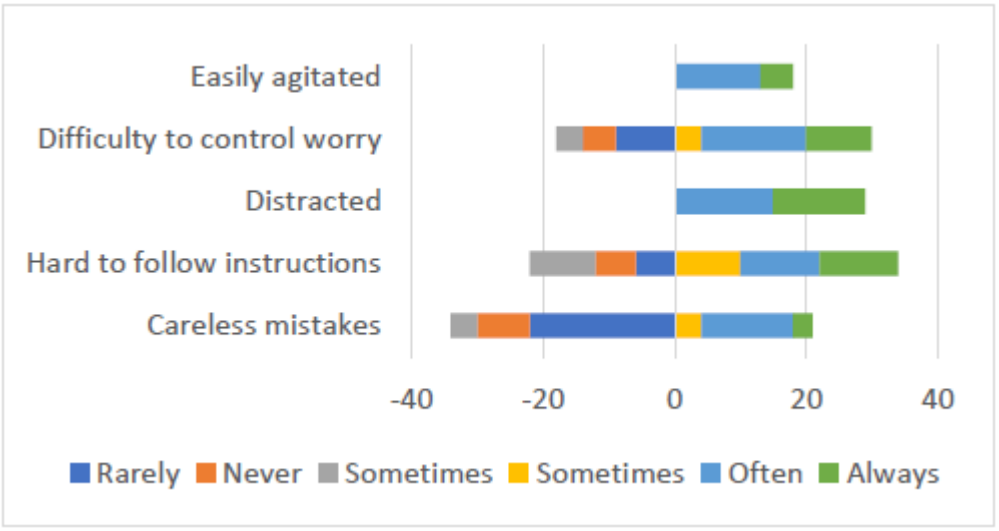

Figure-2: Reinforces this trend and shows their responses and focusing on specific stress-related behaviors and all of those which display a high impact

High, mild and low impact
The study shows that easily agitated has highly chances: High
The study shows that it's difficult to control worry: High
The study shows that people usually feel highly distracted: High
The study shows also its always very difficult to follow the given instruction: High
The study shows a lot of people tend to do careless mistakes: High
All the given graphs, a consistent pattern emerges, and it indicates a significant prevalences of stress-related symptoms and coping challenges in the survey population.

5. Discussion

Examining the data across these four graphs, it is evident that participants were experiencing a considerable amount of distress. It was not just one or two things they were struggling with; it was an entire constellation of symptoms and difficulty coping. In Graph 1, for example, issues with sleep and daily stress were prevalent. It was not just people feeling a little stressed, but truly affecting their daily lives. Then in Graph 2 begins to show how that stress was impeding their ability to deal. Many felt overwhelmed by excessive ruminating about the future, and struggled to maintain a sense of calm. What was particularly interesting was the number of people acknowledging needing to seek help, which indicated a level of self-awareness about the issue. It seemed that problem-solving was a considerable challenge for many; again, not surprising

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under extreme duress. Graph 3 then demonstrated in considerably concrete terms how distress were affecting their behaviour. They reported being easily agitated, struggling to control their worrying, and having trouble focusing. Their minds were really off the proverbial edge of the cliff. And then you can see it carry into Graph 4, clearly the irritable and worrying about the future made an impression. By these measures, particularly the 'rarely' and 'never' responses to be very low - almost inconceivable for this group. Concerning the high levels of distress they have noted to be the norm, it is also instructive how many were in that 'sometimes' category; that was notably high.

4. Conclusion

Stress and anxiety can negatively and multilaterally impact cognitive performance. Studies show consistently that stress, whether acute or chronic, will produce physiological (biological) and psychological changes that interrupt cognitive function. Increased cortisol followed by an increased attentional bias for perceived threats will impact working memory and, ultimately, the ability to attend to information and subsequently make decisions. While a small subset of cognitive tasks may see a very slight improvement in cognitive performance due to mild stress, the overwhelming evidence to date points to a negative association between stress/anxiety and cognitive performance. Particularly executive functions engaged in more complex tasks, which are a subset of cognitive processes, seem susceptible to the detrimental effects of stress. Reductions in cognitive flexibility, planning, and problem-solving abilities are seen as a result of stress stimulating executive functions in subjects - thus, the impact would occur in educational, professional, and personal settings that rely on an optimized cognitive function. As such, it is important to find ways to mitigate stress and anxiety to preserve and/or enhance cognitive performance. Future studies should examine the specific neural circuits that underlie these impairments, potential interventions that may improve cognitive resilience to stress, and the differences between people in their response to stress and cognitive impairment. Doing so will aid the development of strategies to improve cognitive performance in the presence of stress and anxiety.

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