

A Descriptive and Inferential Analysis of Causes and Effects of Stress Among Teenager in United State Using Large Data

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ABSTRACT

Teenage stress is one of the things that has a significant impact on the healthcare system and both mental and physical health. It is crucial to understand potential remedies for the negative effects of stress and associated health issues in adolescent students. The study fills this vacuum by looking into potential stress-reduction strategies. A sample questionnaire of 35878 items was dispersed among high school students in the United States. Students were given four research questions about stress and were asked to respond with twenty-five points. Based on the study question, both descriptive and inferential statistics were performed. 35878 teenagers answered how often they feel stressed, and 32095, 33306, and 34881 teens answered the other questions. A total of 44.9% of the teens are affected by stress time, 22.4% of the sample talk to friends whenever they are stressed, 45.2% of their resources to online/apps and the following are what stressed the students most; relationships, teachers, other, parents, college and friends. A total of (27.2%) of the students claims that relationships are what stress them most. The two stressful regions were identified as Texas and Florida. Four research hypotheses were tested on the question using inferential statistics. The null hypothesis was rejected while the alternative was accepted in research questions 1, 2 and the null hypothesis was accepted in research question 3 and 4.

Keywords: stress, effect, among teenager, United States, solution.

1.0 INTRODUCTION

When it comes to achieving academic goals for their future lives, stress is a major source of issues that university students deal with [2]. Pressure from the classroom is one of the things that makes students fail. It has a significant impact on both physical and mental health, making it extremely important to the healthcare system [14]. Stress-related chemicals help the body adapt and protect it in the short term, but over time, the body's physiologic reaction to stress results in alterations, particularly in the brain, which can cause illnesses [13].

A second channel to allostatic (over-) load and disease is provided by behavioural stress reactions such as increased smoking, decreased exercise and sleep, and poorer adherence to medical regimens, in addition to the physiologic pathway via cortisol and the autonomic, metabolic, and immune system [9].

In general, stress refers to two things: the body's reaction to pressure, which affects several systems, including memory and muscle deterioration, and the psychological impression of pressure on the one hand. Stress makes one hold themselves to a high standard, which leads to tension and pressure[11].

Without stress, some tensions keep us moving and others are beneficial to us. Many claim that we would lead dull, possibly useless lives [3]. Stress is harmful, though, when it compromises our bodily and mental well-being. Students face a variety of pressures, including pressure to perform well academically, uncertainty about the future, and trouble adjusting to the system. In addition, students deal with family, social, emotional, and physical issues that may hinder their learning and academic achievement[5]. Excessive stress can harm a person's physical and mental well-being, lower their self-esteem, and impair their academic performance [6].

But for those who are actively enrolled in college, the procedure is frequently nerve-wracking and annoying. Stress can come from relationships, career decisions, the pressure to perform well, grade competitiveness, and many other components

of the university atmosphere. [15] Before categorically denouncing stress, it is important to recognise that stress is only detrimental in excess. As we all know, a large portion of stress is beneficial and stimulating. The challenges of life tend to be stressful and an attempt to avoid stress completely would lead to a rather boring existence. When you experience excessive stress, an issue occurs. While certain responses to stress are indicative of more profound and severe emotional issues, the majority are not, and they may be addressed with relatively straightforward counselling and stress reduction techniques.[10]

It could seem hopeless to try to prevent stress or find a means to fully decompress when it does strike. There won't be more time in the day, the bills won't stop coming, and your obligations to your family and job will never let up. Contrary to popular belief, you have a great deal more influence over your stress levels.[11] In actuality, stress management starts with realising that you are in charge of your life. Taking control of your thoughts, feelings, schedule, surroundings, and problem-solving style is the key to effectively managing stress. The ultimate objective is a balanced life that includes time for relationships, work, leisure, and enjoyment as well as the capacity to endure

The goal of stress management is to become more flexible in how you respond to stressful situations in your life by employing a variety of coping mechanisms and tactics. It's not, however, a one-size-fits-all solution. It's crucial to try different things until you figure out what works best for you. The following stress management methods and practices can be helpful whether your goal is to manage stress on the spot, prevent needless stresses in your life, or lower your overall stress levels.

Finding the sources of your stress in life is the first step in managing your stress. While significant stresses like moving, changing jobs, or going through a divorce are easy to detect, identifying the origins of chronic stress can be more difficult. It's incredibly simple to ignore how your attitudes, sentiments, and actions affect how stressed you feel daily. You may be aware that you worry about work deadlines all the time[7], but perhaps the real source of your stress is not the demands of your job but rather your procrastination.

2.0 LITERATURE REVIEW

Stress is a state of being that students experience physically or mentally as a result of different pressures [8]. This research provides an overview of the literature on the effects of stress on students at the University of Cape Coast School of Business's academic performance. This study's primary goal is to find out how stress affects University of Cape Coast School of Business students' academic performance and what risks arise from improper stress management. A discussion of acute and chronic stress is also included, and it is connected to the stress period. Academic pressures include economics, social ties, academic achievement, and time management are hotly contested topics. Additionally, this study describes how students manage stress. This research will benefit companies. It is advised to employ a variety of strategies to lessen, prevent, and manage school stress in real life.

Numerous events can cause stress, and there are many different interpretations of what stress is. People say they get stressed out when they have to take an exam, when they are in a tough work environment, or when they are having marital issues. Stressful circumstances may be viewed as detrimental, risky, or challenging [12]. Stress is a result of numerous things, making it challenging. Determining what stress is can be challenging. [1]. put out the definition of stress that is most widely used, which is "as a nonspecific response of the organism to any request for change." "People experience suggested stress when they believe that the demands of an external situation exceed their capacity for adaptation."According to [13], stress is a mental state that mirrors specific bodily chemical processes; tension and sadness are brought on by internal or external factors that an individual's resources are unable to address. [5]claimed that "stress is triggered by a multitude of demands (stressors), a disparity between what we need and what we can, what our world offers us and what it demands of us."

When a person's burden surpasses their available resources, stress results. Severe and protracted stress can have negative effects on academic performance, make it more difficult for students to get involved in and contribute to campus life, and raise the risk of substance addiction and other potentially harmful behaviours [8]. According to research by [12], stress is the sense of an imbalance between the demands placed on an individual by their surroundings (stressors) and their capacity to meet those demands. Stress, according to researchers, is the unpleasant response humans have when they are subjected to extreme pressure or another type of strain. When someone encounters something they see as uncontrollably compelling and are unable to handle, stress arises [13].

In a university or other advanced learning institution, students are subjected to a load that is determined by the amount of time allotted and the challenge of doing well on tests or exams. Stress symptoms include low energy, elevated blood pressure, depression, increased desire, difficulty focusing, impatience, anxiety, and anxiousness, according to research One useful paradigm for understanding stress in college students is the Person-Environment model [11] According to this

concept, people may perceive stressful situations as frightening or demanding. When educational objectives are viewed as challenges, stress is generated. This stress then contributes to a feeling of competence and improved learning potential. But when education is seen as a danger, it also breeds pessimism and a worrisome sense of loss, which lowers academic performance. Stress is regarded as a normal aspect of student life and might affect coping mechanisms in response to the demands of academic life. In reality, academic work is always completed under pressure [4]. Every semester, students kept a log of their high levels of academic stress, which they attributed to studying for and taking exams, competing in classification, and learning a lot of programs in a short amount of time [13]. University students exhibit a high correlation between stressful life events and declining academic performance, as well as a relationship between stress and health-related quality of life.

3.0 METHODOLOGY

3.1 Research Design

A descriptive survey was used as the study's research design. Because the researcher may generate data using standardised collecting techniques based on highly organised research instrument(s), clearly specified study topics, and related variables, this design is deemed appropriate.

3.2 Population of the Study

Teenagers from high school pupils in the United States (U.S.) who use social media are the study's target audience. 35,878 teenagers were sampled for the survey. Students from American high schools were given access to the online, self-administered questionnaires.

3.3 Research Instrument

High school pupils in the United States were given well-designed online self-administered questionnaires. Four demographic questions made up the survey questionnaire: How often do you feel stressed? What stress you out the most? What are you most likely to do when you're stressed? And what tools do you employ to assist?

3.4 Method of Data Analysis

The descriptive statistics of frequency, counts, and percentage as well as the inferential statistics of the T-test were used to examine the questionnaire responses. Inferential statistics such as the T-test were utilised to evaluate the stated hypotheses at the 0.05 level of significance, while descriptive statistics such as frequency counts and percentages were utilised to analyse demographic variables and research topics.

4.0 RESULT AND DISCUSSIONS

The study examined the response of teenagers on what preventive method they apply when there are stresses in school.

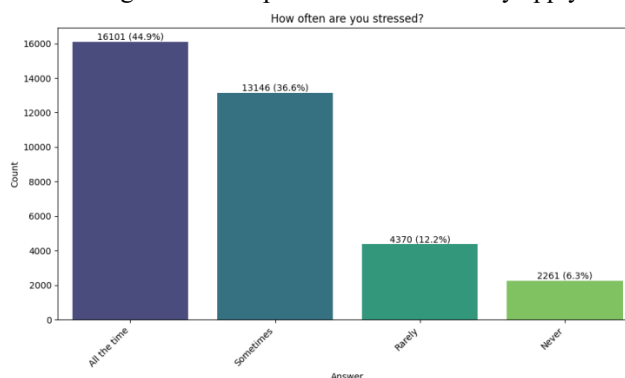


Figure 1: Response How Often Are Stresses

The bar graph displays the responses of 35878 teenagers to the question about how frequently they experience stress at school. The student response to "all the time" is the highest at 16101 (44.9%), followed by "sometimes" at 13146 (36.6%). The student response to "rarely" and "never" is the lowest, with the corresponding percentages being 4370 (12.2%) and 2261 (6.3%). These suggest that stress is a significant element that impacts students in the classroom.

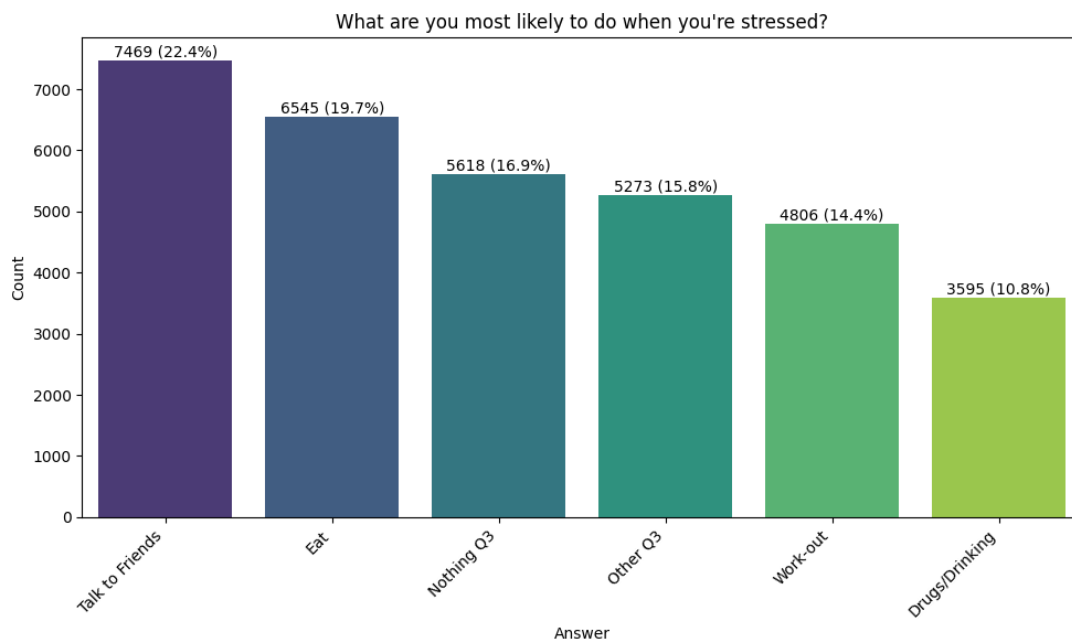


Figure 2 Responses to What are You Most Likely to Do When you are Stressed

Since stress has an impact on students' academic performance, figure 2 shows a solution for students who are stressed. According to student responses, 7469 (22.4%) of the sample chat to friends when they're anxious, while 6545 (19.7%) eat, and 5618 (16.9%) do nothing to improve their situation. 5273 students, or 15% of the student body, engage in extracurricular activities when they are under stress at school, 4806 students (14.4%) work out for a visit, and 10.8% of the student body turns to drugs or alcohol.

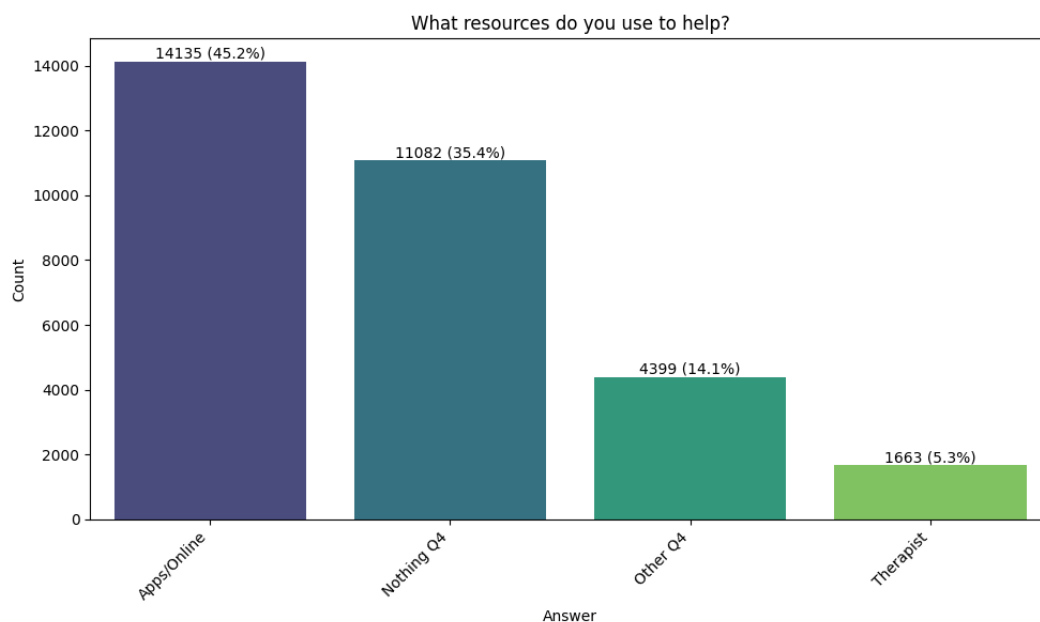


Figure 3 Responses to What Resources Do Use to Help

The following are employed by high school students to decrease stress: nothing, other, therapist, apps/online, and nothing. (14135) The majority of the population uses online resources and apps, accounting for 45.2% of the total, while 11082 (35.4%) of them do nothing about their stressful day at hand, 4399 seek out sick help from other resources, and 1663 (5.3%) use therapists.

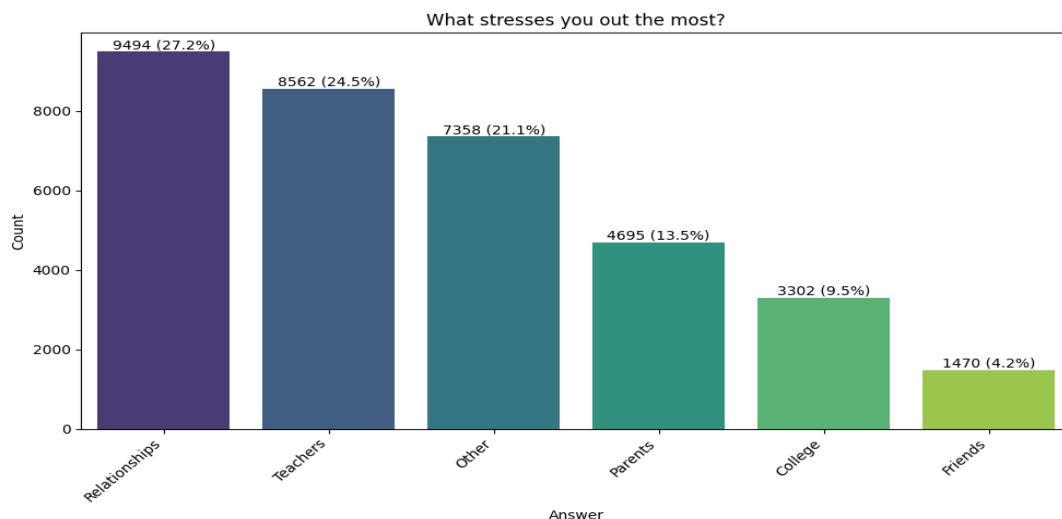


Figure 4 Responses to What Stressed You out the Most

Relationships, teachers, other students, parents, college, and friends were the student's top stressors. With a total value of 9494 (27.2%), relationships have the highest percentage of what stresses students out the most, followed by professors with a total of 8562 (24.1%) and other activities with a total of 7358 (13.5%), according to the bar chart above. 4695 parents, or 13.5% of the population, are parents. College and friends rank lowest for the things that stress them out the most, scoring 3302 (9.5%) and 1470 (4.2%), respectively.

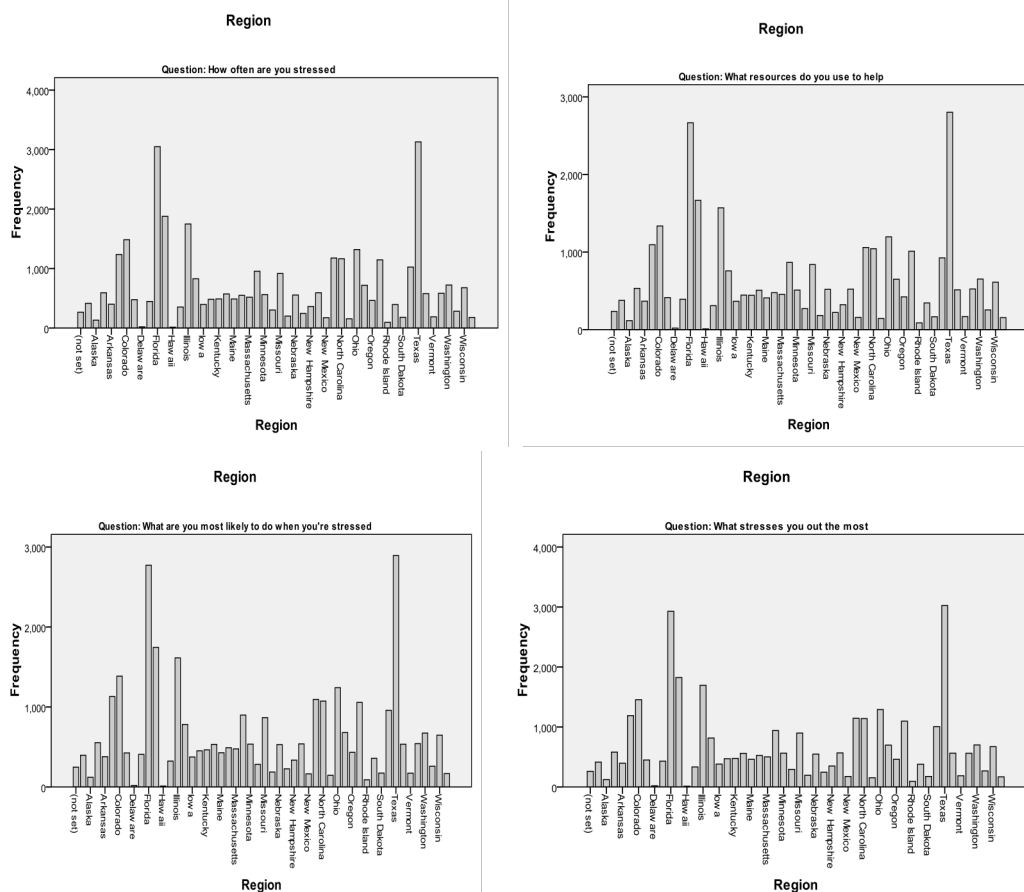


Figure 5 Response to the Questions Base on Region

The region of the United States shown in the above figure is where the questionnaires were given to the students participating in the stressful school session. The students in Texas and Florida have the highest response rates to the four questions: how often are you stressed? What resources do you have to help? What are you most likely to do when you're stressed? And what stresses you the most. These indicate that students in this area are most stressed. When asked the four-

question survey, 8.5 % of students from Florida and 8.7 % of students from Texas said that they were stressed.

Table 1: Descriptive Statistics of the Four Research Questions

Question = What often are you stressed?						
responded	All the time	Never	Rarely	sometime		
Total/%	16101(44.9%)	2261(6.3%)	4370(12.2%)	13146(36.6%)		
Question = What resources do you use to help?						
responded	Apps/Online	Nothing Q4	Other Q4	School Resources	Therapist	
Total/%	14135(44.0%)	11082(34.5%)	4399(13.7%)	816(2.5%)	1663(5.2%)	
Question = What are you most likely to do when you're stressed?						
responded	Drugs/Drinking	Eat	Nothing Q3	Other Q3	Talk to Friends	Work-out
Total/%	3595(10.8%)	6545(19.7%)	5618(19.7%)	5273(15.8%)	7469(22.4%)	4806(14.4%)
Question = What stresses you out the most?						
responded	College	Friends	Other	Parents	Relationships	Teachers
Total/%	3302(9.5%)	1470(4.2%)	7358(21.1%)	4695(13.5%)	9494(27.2%)	8562(24.5%)

Table 1 displays the four questions that were posed as well as potential answers to the stress-relieving inquiry. Regarding how frequently you are stressed, 16101 (44.9%) people say they are constantly stressed out. Answering the first question, 14135 (44%) of the adolescent population provided options for applications and online stress reduction. While 6545 (19.7%) recovered their energy through eating and watching the teacher's advances.

4.1 INFERENCE STATISTICS

To respond to the following Research questions: What is your frequency of stress? What causes you the greatest anxiety? When you're stressed, what are you most likely to do? And What tools do you employ to assist?

The Following hypotheses are tested using the t-test

How Often Are You Stressed?

Ho= I'm not stressed up all the time

Ha= I'm stressed up all the time

What Resources Do You Use To Help?

Ho = I don't resource to any material

Ha= I resources to some Materia

What Are You Most Likely to Do with You're Stressed?

Ho=I don't do anything when I Am stressed up

Ha= I do some activities when I Am stressed up

What Stresses You Out The Most

Ho= Nothing stresses me out the most.

Ha= something stresses me out the most?

Table 2 Inferential Test of Hypothesis on the Four Research Question

Response to questions	Test Value = 0.05					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Response for Q1	2.680	3	.075	8969.45000	-1683.4619	19622.3619
Response For Q2	2.432	4	.072	6418.95000	-910.3858	13748.2858

Response for Q3	10.062	5	.000	5550.95000	4132.8915	6969.0085
Response for Q4	4.507	5	.006	5813.45000	2497.8153	9129.0847

The p-value for the first hypothesis test is 0.075, which is higher than 0.05. This indicates that the alternative—that teenagers are constantly stressed out—is accepted and the null hypothesis is rejected. It has been demonstrated that students are constantly engaged in demanding activities at school. Given that question 2's p-value of (0.072) is higher than 0.05. The alternative is accepted and the null hypothesis is rejected. Teens can access tools like applications and the internet, schools, and other high-quality content for assistance. On the other hand, the p-value in question 3 is (0.00). This suggests that the null hypothesis is true. as the substitute is turned down. This demonstrated what happens to students when they are under stress. Lastly, the p-value of question 4 also confirms that the null hypothesis is true.

5.0 CONCLUSION

This study looked at how stress affected teenagers attending high school in 52 regions and 4242 cities in the United States. Using Python programming tools, we employ the descriptive and inferential aspects in statistical analysis to get the desired outcomes. A total of 35878 students were given four study questions, with 25 options for them to respond regarding their experiences with stress. How frequently do you feel stressed?. What causes you the greatest anxiety? When you're stressed, what are you most likely to do? And what tools do you employ to assist? A total of 35878 teenagers answered the first study question, according to the descriptive statistics shown in the figure above. In school, 44.9 per cent of students report feeling stressed out all the time.

Nonetheless, the research question indicates that stress has a constant impact on teenagers. The situation needs to be corrected. Based on the remedy, the second study question asked, "What resources do you use to help?" 32095 people answered the question in total. Of the sample, 22.4 per cent talk to friends when they're stressed, compared to 19.7%, 16.9%, 15%, 14.4%, and 10.8% who eat, do nothing, engage in other activities, and work out in preparation for a visit, and use drugs or alcohol. The following are utilised by high school students to reduce stress: nothing, other, therapist, apps and the internet. Most of the resources are applications or online.

Since stress is a significant issue impacting students, an answer to the fourth research question—"What resources do you use to help?"—must be provided. Relationships, teachers, others, parents, college, and friends are the response items. With a total value of 9494 (27.2%), relationships are the most stressed-out factor for students, according to the graphic. Teachers come in second with a total of 8562 (24.1%).

Additionally, the researcher looked into the stressful conditions in the city and region where the questionnaires were given out. The students in Texas and Florida have the greater answer rates for the four questions. These indicate that stress has an impact on students.

Using inferential statistics, four research hypotheses were tested on the given issue; the hypothesis under test was assessed using the T-test with the p-value shown in Table (2). In study questions 1, 2, and, the null hypothesis was rejected and the alternative was accepted; in research question 3 and 4, on the other hand, the null hypothesis was accepted and the alternative was rejected that they did nothing when they were stressed. Evidence of student activity beyond what was specified in the research question was presented.

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