



## Introduction

It is thought that pandemic related anxiety has an affect on a undergraduate college students. Contributing factors could be a genetic predisposition to Neuroticism, or a Neuroticism score itself.

In order to determine if a student has a genetic predisposition for Neuroticism, allele-specific PCR analysis can be done. In order to do this, a specific gene is targeted. In this data simulation, an intronic rs1067327 polymorphism was analyzed, with a frequency of 43% in the general population. To find if a subject has this disposition, it is important to know of the base change, a cytosine to guanine.

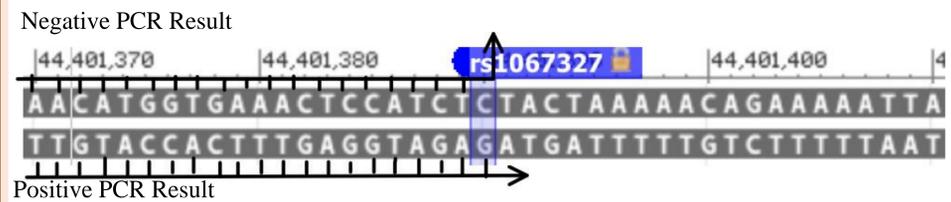


Figure 1: Arrows indicate primers. Primers are what will attach to the gene and determine if the subject has the neurotic gene. The gene that would expose someone to neuroticism is indicated by the base change to guanine (G). (National Library of Medicine, 2020).

	Percent of qualitative result	Mean of quantitative result	Standard deviation of quantitative result	Max. number of standard deviations	Correlation between results	Population size
Figure 2	43	0.896948346	0.600955392	4	95	100
Figure 3	43	47.74489796	62.21191863	4	95	100

Table 1: Values that were plugged into the ACES program to receive the simulated data used in both Fig. 2 and Fig. 3.

## Results

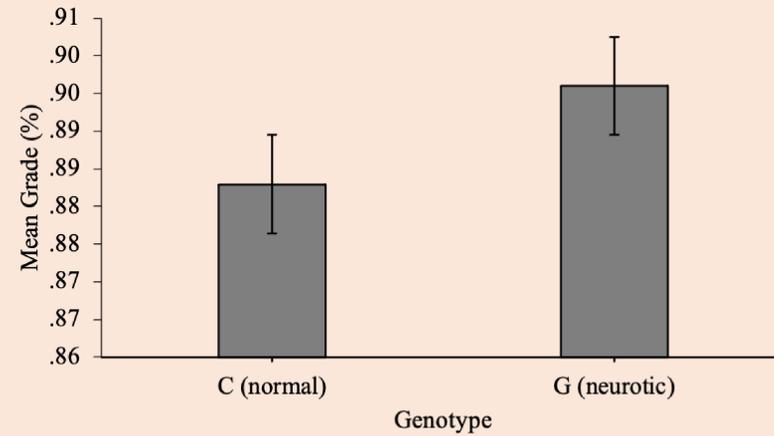


Figure 2: Simulated genotype and mean grade (%) of Alma College students. This shows students with a neurotic genetic predisposition (ie, base change to G) will show a higher-grade point average during the COVID pandemic.

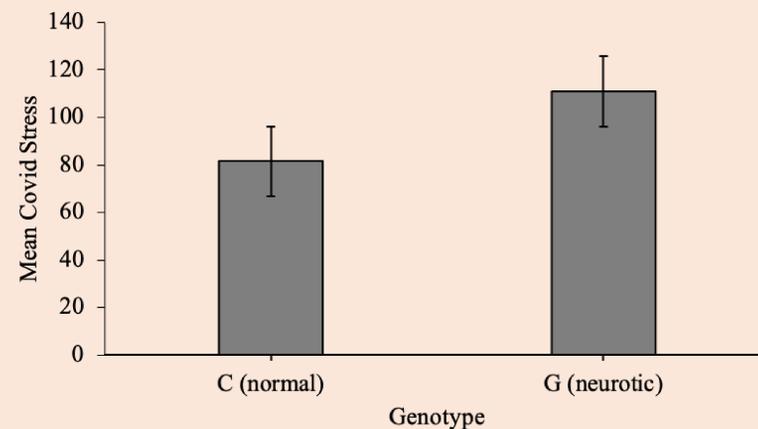


Figure 3: Simulated genotype and mean COVID stress response of Alma College students. Fig. 3 data suggests that students with a neurotic genotype will have higher location anxiety on a college campus. This potentially is because of the trait anxiety these subjects would express in a non-pandemic environment.

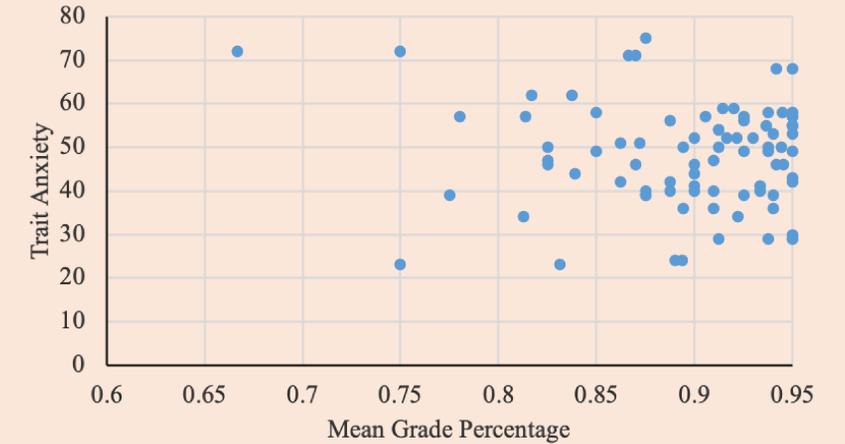


Figure 4: Trait anxiety scores and mean grades (%) of Alma College students. Fig. 4 analyzes the trait anxiety scores and grade averages of students which supports both figures 2 and 3. It is suspected that those with the higher grades and a higher trait anxiety score would have the neurotic allele (G), and those with lower trait anxiety would likely express the normal (C) allele.

## Conclusions

Understanding your genotype could be an influential coping mechanism, especially amidst a global pandemic. If students were able to know how manage their stress based off of their biological makeup, when faced with unique environmental conditions, state anxiety could have little to no harm. Those with the genetic predisposition to neuroticism have the potential to decrease their trait anxiety scores as well as their specific location anxiety, an example of state anxiety.