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Suicide Prevention POC
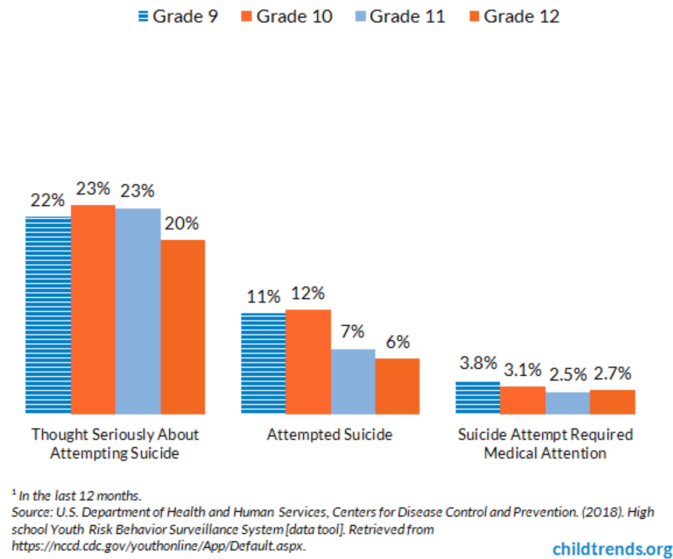
Resources:

1) https://www.nimh.nih.gov/health/statistics/suicide.shtml

2) https://www.childtrends.org/indicators/suicidal-teens#:~:text=However%2C%20prevalence%20has%20increased%20since,to%206%20percent%20in%202009.

The Problem: Over the last couple of years the suicide rate for students has increased drastically. There was a point when the rate was decreasing, but in the past couple of years it has grown. As a student and a developing mind, I believe that we need to focus more on our peers' mental health. We as a society have to be able to help and protect each other, but sometimes it's hard to see when something is wrong or just not right. I want to change this and make sure no one has to go through this alone and feel like no one is there for them. If we notice the warning signs earlier, we can provide people the help that they need, and that's exactly what my project intends to do.

Statistics proving that this is a real problem:

1. From 1991 to 2009 the thought of committing suicide for highschoolers has decreased from 29% - 14% but since then the thought of suicide has increased up to 17% in 2017.

2. Suicide is the second highest leading cause of death for people between the age group of 10-14 and 15-24.

22% 23% 23%
20%

11% 12%
7% 6%

3.8% 3.1% 2.5% 2.7%

Thought Seriously About
Attempting Suicide

Attempted Suicide

Suicide Attempt Required
Medical Attention

¹ In the last 12 months.
Source: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. (2018). High
school Youth Risk Behavior Surveillance System [data tool]. Retrieved from
https://nccd.cdc.gov/youthonline/App/Default.aspx.

childtrends.org

Common trends that people who are depressed display:

1. A drop in school grades

2. Lack of interest in social activities

3. Frequent absences from school

4. Physical fatigue

Personal experiences with the problem: Throughout high school there have been 2 times where I can say that I've seriously been depressed. The first time took place during my sophomore year when my American Grandmother passed away suddenly and the other time was right before covid due to family issues. These times were the hardest times for me in highschool, and it even got so bad that I developed serious suicidal thoughts. Even through all this, I acted as though nothing was wrong because I didn't get the point in burdening other people, but in reality I desperately needed help. To be honest, this isn't a unique scenario; I've seen my fellow

classmates go through some harsh times. Going through and seeing situations like this has motivated me to want to find and create a solution that can actually make a change.

How these trends can be used to help implement an AI indicating that someone is a risk factor for suicide:

Artificial intelligence is a fast growing and developing industry, in which machines can understand and learn from data through a specifically designed algorithm. As of right now, some examples of data that can be seen in the schools database are grades, attendance, and participation in clubs and sports. The artificial intelligence program that I hope to build will look at that data and analyze it for each and every student individually. If there are any significant discrepancies that can be seen through all the data, the AI will alert the guidance counselors about it. This program would analyze each student differently, and learn through their past records; for example if one student had a 98 overall average and another student had an 80 overall average and both of them end up getting an 80 overall average at the end of the quarter then we would most likely create an alert for the student who had the 98 overall average in the beginning. My goal with this AI project is not only to help other students but to also increase my knowledge so that I can be able to use it in other applications that I am planning to create in the future.

Parts of project that are complete:

- Created a linear regression model that can be used to predict future grades in the semester or quarter.

- Learned how matrices can be used to compile all quantitative factors.

- Created a notification alert that can be sent when large discrepancies in the data are found.

Parts of project I want to complete this and next semester:

- Complete research with a psychology professor at The Pennsylvania State University.

- Complete the compilation code used to determine when a student is not well.

- Be able to implement this in within a school and get it running.