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PROJECT PROBLEM

04/04/2020

# Overview

## Project Problem and Description

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|  | Describe the real-world problem you have selected for your project and give background on the issue.  Teen Depression and Suicide  Adolescent depression is a serious problem that has gotten some national attention. Adolescent depression affects 10.7% of all teens and 29.9% of high school students. Identifying depression in teenager can be very tricky and getting early intervention is key for an adolescent to beat this issue. The recommended analysis would help predict and identify which children are most likely to have depression.  K;, K. M. K. (n.d.). *Teen Depression and Suicide, A SILENT CRISIS*. Journal of Christian nursing : a quarterly publication of Nurses Christian Fellowship. https://pubmed.ncbi.nlm.nih.gov/27119802/. |

## Project Scope

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|  | Project scope defines the boundaries of a project. Think of the scope as an imaginary box that will enclose all the project elements/activities. It not only defines what you are doing (what goes into the box), but it sets limits for what will not be done as part of the project (what doesn’t fit in the box). Scope answers questions including what will be done, what won’t be done, and what the result will look like. |

In Scope: Identify teenagers that will most likely have depression  
Out of Scope: Predicting which teenagers that are depressed will commit suicide

## Data Sources / Data Elements

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|  | Provide the data sources and the data elements you will need to analyze the problem you have identified. |

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| Data Source | Data Element | Purpose |
| Depressed children’s data | Age | Identify age ranges of children diagnosed with depression. Need to understand the most common age ranges for depression |
| Depressed children’s data | Gender | Identify gender of children with depression to determine if depression is seen more in girls or boys. |
| Depressed children’s data | Parents marital status | Identify if single, co-parenting, divorced or married parents collates to depression in children. |
| Depressed children’s data | School Grades | Identify if school grades or certain classes taken collates to children being depressed |
| Depressed children’s data | Siblings | Identify if there is a collation between how many siblings in the household and depression. Is it common to see depression in only children or homes with multiple siblings? |
| Depressed children’s data | Drug/Alcohol/physical/sexual abuse | Identify if there is a collation in these categories of abuse in being depressed. Is there one abuse that sees more children depressed? |
| Depressed children’s data | Income level | Identify income level that has the most childhood depression. Determine if income level correlates with depression |
| Depressed children’s data | Race/nationality | Understand if race/nationality collates with depression. |
| US states data for amount of people depressed | Geographical Location | Understand if there is correlation between being depression and location a person lives. |
| US states data for amount of people depressed | Weather / Season | Determine if weather affects depression. Are there particular months where an increase in depression among people are seen? |
| Depressed children’s data | Mental development | Determine if depression is common in children with a intellectual disability, low IQ or high IQ. |
| Social Media Data | Time spent and activity | Identify if social media amount of use and activities viewed correlates with depression. |
| Depressed children’s data | Diet | Identify if there is a collation between depression and diet. |

## Analysis

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|  | List the analysis you plan to do of the data, if you plan to create a predictive model, etc. |

My overall goal is to use machine learning to identify children at high risk for childhood depression before the classic depression symptoms are present or noticed by others. Depression in young children tends to be hard to diagnosis because children don’t show the same symptoms as adults, and childhood depression tends to be passed off as normal emotions for the child’s age frame. In my model, I would like to think outside of the stereotypical symptoms of depression such as social withdraw, sadness, or anger but to look at data from the US of confirmed or reported cases of childhood depression within the last five years to see if there are any new patterns identified in the data provided. This data will help build a more robust model that identifies those at-risk children to provide early intervention treatment for the child and family. Early intervention is key to deterring children from attempting suicide and giving the child a better quality of life.

Data included in my analysis are:

* Common symptoms of depression
* Child’s age, weight, height, gender, and history of drug or sexual abuse
* Parents of the children: Age, sex, sexual orientation, history of depression or drug/sexual abuse
* At home life, including income level, the number of siblings in the household, and diet.
* Social life: introvert or extrovert, social media platforms used, and internet search history
* School life: grades, discipline record, and organizations involved in
* geographical location: city and state
* Date depression was diagnosed

Statistical analysis applied: Regression and clustering

* Regression will help ID what factor has the most substantial impact on Childhood depression
* Clustering will help ID new patterns between the elements above

## Assumptions/Constraints

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| --- | --- |
|  | List any assumptions/constraints you are anticipating when analyzing this problem |

* Incomplete data due to the childhood depression was not reported or diagnosed.

## Benefits

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|  | Outline the benefits that would be realized from this analysis being performed  My hope is that this data will help build a stronger model that identifies those at-risk children in order to provide early intervention treatment for the child and family. Early intervention is key to deterring children from attempting suicide and giving the child a better quality of life |

## Risks

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|  | Outline any known risks that might be realized from this analysis being performed  No new relationship or pattern identified from the data provided. The model is similar to all previous models with no new insight. |

## Business Process Changes

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|  | This might not be applicable, but if this is to an existing business process, identify any changes or workflow modifications that will occur |

## High-Level Timeline/Schedule

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|  | Describe what the high level timeline/schedule will be to plan, design, develop and deploy the project. Generally, by when do you expect this project to be finished? |

## Recommendation

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|  | Based on what you have identified, do you want to recommend proceeding with the project? If not, outline why you do not think you are ready to proceed. |

## Proposed Solution

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|  | If you have already started thinking of a way to solve the problem, should your analysis prove true – identify an initial solution. If you aren’t recommending proceeding, you likely don’t have a solution yet, which is okay. |

# Approval and Authority to Proceed

We approve the project as described above, and authorize the team to proceed.

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| Name | Title | Date |
| Your Name |  |  |
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| Approved By |  |  | Date |  | Approved By |  |  | Date |